

THE IRON AGE

A Review of the Hardware, Iron, Machinery and Metal Trades.

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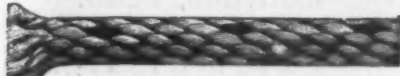


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THE IRON AGE

New York, Thursday, February 23, 1905.

The Warner & Swasey Turret Screw Machine.

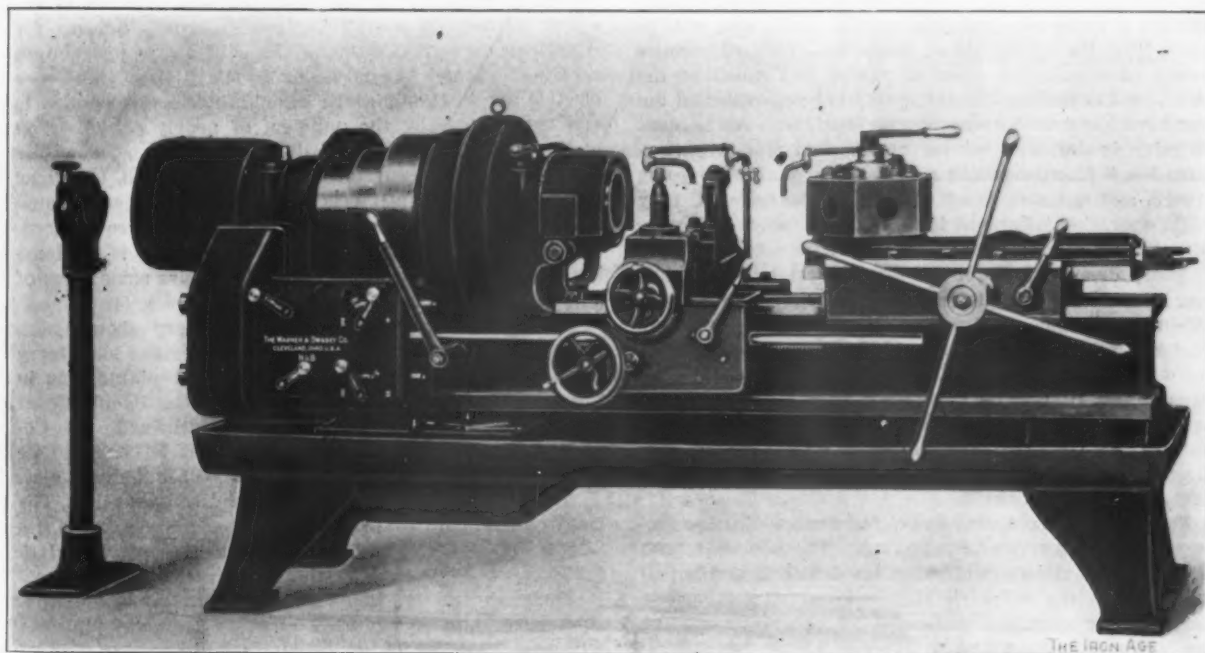
With a view to placing at the disposal of brass workers and manufacturers of duplicate pieces larger than the capacity of the ordinary screw machine the advantages of the latest developments in its hollow hexagon turret lathe, a line of machines specially designed to meet the requirements has just been produced by the Warner & Swasey Company, Cleveland, Ohio. The company has named this machine its new turret screw machine, and is now building it in a complete line of sizes covering the entire range of this class of work. The particular size selected for illustration in this description is one which is typical of the line, as its various capacities are such as to bring the machine within the scope of the greatest general demand.

This machine takes bar stock from the smallest sizes

the long lever in front of the head, working through a system of compound levers, which gives a powerful movement for closing the jaws, and the same lever also engages and disengages the roller feed. The chuck jaws are adjustable for variations from actual size to 1-16 inch smaller. An outer stock support accompanies the machine, as shown in the engraving.

An entirely new feature for a brass working lathe is found in the turret saddle, which is provided with a supplementary taper base, by means of which the center of the tool holes in the turret can be adjusted to the exact height of the center of the spindle. Taper gibs, fitted the whole length of the saddle on each side, provide means of adjusting the slide sideways. The turret slide is equipped with geared automatic feed, with four changes in either direction, the number of revolutions of spindle to feed 1 inch ranging from 20 to 102.

The turret is hexagonal in form, has six tool holes $2\frac{1}{2}$



The New Warner & Swasey Turret Screw Machine.

up to $3\frac{5}{8}$ inches in diameter through the automatic chuck at the receiving end of the machine, the construction of which is familiar, being similar to that employed in the well-known hollow hexagon turret lathe. The travel of the turret slide is 14 inches, permitting the manipulation of long work, and the swing over the bed is 20 inches; it will therefore be seen that the machine is designed to manipulate large work, and as the chief characteristic of the machine is to combine rapidity of production with accuracy, the rigidity of the machine is an all essential feature. To insure this the head and bed, it will be noted, are cast in one piece, the result being a strong form of construction and rigidity at this vital point, which is certain to be maintained throughout the entire life of the machine.

To give great power wide steps are provided on the three-step cone, this width allowing for the use of a 4-inch belt. The gearing between the cone and the machine is also extremely powerful, being 1.85 to 1, and the back gearing being 7.44 to 1. The back gearing is engaged and disengaged by means of friction clutches. There are 12 spindle speeds, ranging from 15 to 156 revolutions per minute.

The automatic chuck and the power roller feed will handle bar stock of any shape. The chuck is operated by

inches in diameter and also bolt holes for attaching tools to the faces. It is so arranged that stock of any diameter smaller than the tool holes can pass entirely through. The index is nearly the full diameter of the turret, and the lock bolt is placed directly under the working tool. Independent adjustable stops are provided for each face. The carriage has geared automatic cross feed, permitting four changes of feed in either direction, the range of revolutions of the spindle required to feed 1 inch varying from 61 to 306. The carriage is also provided with hand longitudinal feed. It is provided with a tool post for holding, forming and turning tools, and also with a cutting off tool holder.

The geared feeds insure a positive drive, and any one of the changes is instantly available by shifting a lever. The turret and carriage feeds are independent of each other, and both are provided with adjustable automatic trips. The pan and oil reservoir are of large dimensions. The geared pump delivers a copious flow of oil to the cutting tools for both the turret and carriage, through two systems of piping. It operates when running in either direction. A double friction countershaft accompanies the machine as regularly furnished, arranged for belt drive. Motor drive can readily be applied. The net weight of the machine is about 6000 pounds.

Lake Ore Mining News.

DULUTH, MINN., February 18, 1905.—Present work about Crystal Falls, Wis., exceeds that of any point on the Menominee range. All the mines there, many of which have been idle for some years, are being reopened and prepared for extensive operations; new hoisting plants, pumps of large capacity and large and modern crushing apparatus are going in. Much of this work is under charge of Superintendent W. J. Richards of the firm of Corrigan, McKinney & Co., and the firm will soon have in operation Dunn, Great Western, Quinnesec and Lamont, in addition to its Crystal Falls, Tobin and Armenia.

Dunn, it may be remembered, has been sinking a new shaft, and this is now in shape for tapping the water in the mine's large open pit and in its old underground workings. A contract has been given the drilling firm of Cole & McDonald of Duluth, and three horizontal holes are being bored from the breast of the drift in the new shaft to the old workings. These will be cased solidly at the collar, and fitted with valves, so the flow of water may be under absolute regulation, and it will be cared for through the new shaft. As the tapping will be about 600 feet below the water level air pressure will be utilized to force it to surface, and it is estimated that there will be a good head for several hundred feet of water. It will be conducted to its level in the new shaft by gravity through a large pipe running up the shaft, and will be blown from that point out of the mine. This will insure a very inexpensive manner of taking out much of the water. A 1200-gallon Prescott pump is being installed underground and a big crusher on surface. At Lamont the mine is dry, and mining commenced this week. A Gates No. 8 K crusher and a 1200-gallon pump are going in here, and not very much mining can be done till they are in operation. Lamont is not a large mine, and probably would not have been bothered with but for the present sharp demand for ore. At Great Western, which has been in course of unwatering for some time, the mine is dry and ore is now coming out in small volume. Mining will be at full speed very soon. Main mining at this property will be on and above the tenth level, as the eleventh has been but slightly developed. It is worthy of remark that this mine was unwatered from top down in 70 days, which is less than half any preceding record, and is considered remarkable speed. Tobin is increasing its force and is stocking ore heavily.

The Thomas Iron Company, Milwaukee, is now reopening its Hiawatha at Stambaugh. The mine has been idle a year, requires considerable development, and is full of water. In the same vicinity is Fogerty, a favorable looking exploration, which is now under negotiation for lease. It is probable that a shaft may be sunk this year.

Considerable exploration work is to be carried forward around Crystal Falls, Stambaugh and Iron River. Most of this will be by small speculating companies and not by the larger operating concerns. Many drills will be in operation as soon as spring opens.

Pickands, Mather & Co. are increasing work in the Menominee region. They have taken the Youngs land, in Stambaugh, and will develop it. It adjoins the Baltic mine and there is no question that the Baltic lode runs across the line, though how far is not known. The company is increasing its machinery plant at the Vivian mine and will work all its properties heavily.

Michigan, Hemlock and Bristol mines are going deeper, and on all three the main shafts are going down at least one more lift.

At its section 7 mine, Ishpeming, Mich., the Oliver Company has added a night force. New buildings are going in at several mines of the company on that range. At Princeton mine, south of Ishpeming, the Sullivan Machinery Company has taken a contract for diamond drill exploration. The Cleveland Cliffs Iron Company has had three or four drills on this ground some time.

The work of the Bessemer Iron Company, which has been exploring at L'Anse, near the old Taylor mine, for a year past, has ceased and the field has been abandoned.

Several large steel shaft houses, of the type adopted by the Oliver Iron Mining Company, are going in at its large Gogebic mines. In addition to those heretofore

mentioned one will go in at No. 3, East Norrie, and one at No. 4, Pabst. These shafts, as well as A and 7, Norrie, are timbered with steel sets, and in order to complete the fire proof character of the workings incombustible frames were required. This type of shaft and shaft house will be the accepted one for all permanent workings at large properties.

D. E. W.

Central American Notes.

SAN JOSÉ, CENTRAL AMERICA, February 7, 1905.—Latin or Spanish America on the Pacific is waking up by degrees. The port of Guaymas in Sonora, which now has a railroad to the interior, is to be thoroughly dredged and improved by a series of sea walls, breakwaters and piers, as several millions has been set aside by the Government for this purpose. Another Pacific port which is being improved in many ways is Salina Cruz, the western terminus of the Tehuantepec Railroad. Still, breakwaters and dredging will have to be supplemented by serious sanitary work in every direction before the commerce of the world will frequent this port. A number of Americans have bought up the Juchitan lands of Oaxaca once owned by Cortez the Conqueror. The price paid was close to \$500,000, and rubber, coffee and sugar planting will begin at once. The port of Acapulco does not mean to be left behind, especially as it is one of the safest harbors on the Pacific, and it is now bidding for American capital to open up the gold and copper mines of Guerrero and the adjacent fertile plains. The new electric line in Guadalajara has obtained its concession to run trolley cars by the payment of nearly \$500,000 and at the rate of \$50,000 annually.

In view of recent developments in Santo Domingo, Venezuela and Hayti it is not strange that such countries as Nicaragua, Guatemala and Honduras are anxiously asking when their turn may come. There is no denying that people of property generally desire some form of stable government, even a protectorate.

The manufacturers of sugar machinery should keep their eyes open and get a goodly share of the machinery which will be required on the many new plantations in Chiapas, Tepe, Guerrero and on down the Pacific Coast to Guatemala, Nicaragua and even southward. As Canadian lines of steamers are being put on it is to be supposed that British manufacturers will make bids also.

Metal production in Mexico is steadily increasing. The last dividend paid by 15 gold and silver mining companies in Sinaloa, Sonora, San Luis and Pachuca amounted to \$340,000.

Durango and its immense wealth in mines of iron, gold, silver and copper as well as agricultural products will now have an outlet on the Pacific to the port of Mazatlan, which is the route selected by the International Railroad. The line will have some steep grades and difficult country to cut through in the vicinity of Ciudad, but after that is passed the road is clear to the lowlands, where large plantations of cotton, tobacco and fruit are found on all sides.

The Rio de Oro country in Guerrero is attracting attention since the gravel beds began paying from 50 cents to \$1.50 in gold per cubic yard. The section is reached by the new extension of the Central Railway. Mining is generally considered a safe business in this section, the price of shares of several mines (par value \$100) being respectively \$1280, \$2250 and \$3400.

California people have a concession for a long distance telephone system in Sinaloa as well as for the electric lighting of the capital, Callacan.

Rails and railroad material for the Tabasco Central line have been ordered in New York, payment being made through the Banco de Tabasco. It is expected that the line will be in operation within a year.

These countries are beginning to use a good deal of hydraulic machinery, but for some reason or other they consider the German article better in workmanship and general good quality. I believe that our manufacturers of first-class hydraulic machinery should look into this.

The New Jersey Zinc Company is preparing to build a second spiegeleisen furnace at Palmerton, Pa.

The Robertson Electrically Driven Hack Saws.

The hack saw is a machine in which the advantages of individual motor drive are particularly apparent. The nature of the work to be performed, such as cutting long bars, beams, &c., often necessitates locating the saw in some portion of the shop removed from other tools to secure ample room to handle the work without obstructing passages or interfering with other machines. In such cases belt power is often not available or must be supplied by expensive counter shafting. The motor driven tool is entirely independent of line shafts and greatly simplifies the problem of location. A new line of electrically driven hack saws has just been placed upon the market

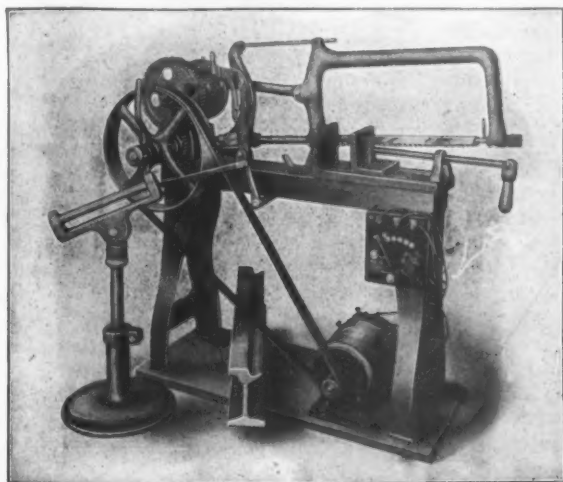


Fig. 1.—Back Geared Machine with Capacity of 8 x 8½ Inches.

by the Robertson Mfg. Company, Incorporated, Buffalo, N. Y. These machines are made in five sizes, the largest being of 10 x 10 inches capacity, while a special machine is produced for structural iron and steel makers which is made for cutting beams, channels and other shapes up to 8 inches wide by 15 inches high.

The machines are rigid in construction, so as to insure

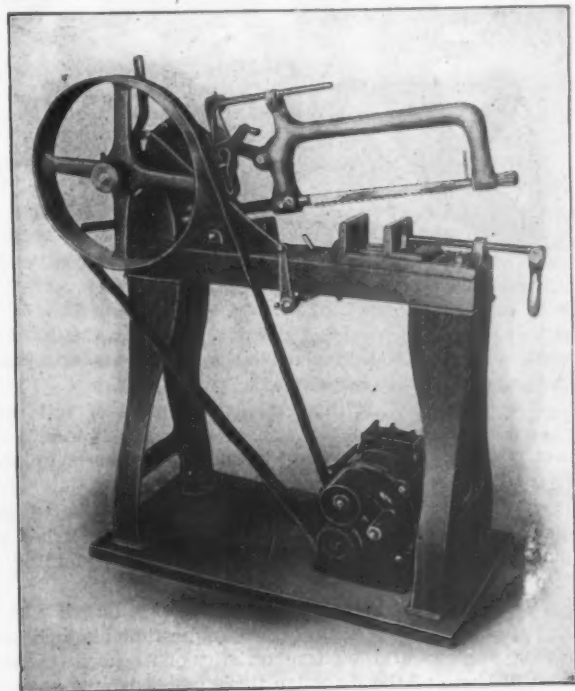


Fig. 2.—Direct Drive Machine with Capacity of 4½ x 5 Inches.

economy in blades and accuracy in cutting. The head is secured to the bed with cap screws. Large milled bearings are fitted in between the housings to support the swing frame. The bearings for the sliding bar of the saw frame are in center line with the saw blade. At the top of the housings are the bearings for the crank shaft,

at one end of which the crank wheel disk is secured. The swing frame is hinged at an angle to the crank shaft, which on the return stroke of the saw raises it positively from the cut, allowing no drag or unnecessary wear on the teeth, insuring much more service and faster cutting. All machines are furnished with quick starting clutch, automatic hold up lever and gravity feed, which may be increased or decreased by moving the weight.

The No. 3 "Rapid Cut" saw, shown in Fig. 1, will cut round or square metals up to 8 x 8 inches. This machine is back geared, permitting of a high pulley speed. The motor used is a regular ¼-horse-power Emerson bipolar type, shunt wound, operating at 1500 revolutions per minute. This motor is entirely inclosed, so that dirt from the saw cannot injure the working parts.

The No. 2 saw, shown in Fig. 2, has a capacity of 4½ x 5 inches, and will cut either round or square metal, and is furnished with a swivel vise for cutting angles, &c. The motor is an all inclosed six-pole machine of ⅛ horse-power, shunt wound, operating at 600 revolutions per minute. This is one of the slow speed Emerson types, especially designed for operating shop machinery. It is equipped with idler pulley to give the motor pulley sufficient belt surface when the motor is placed close to the large fly wheel.

These hack saws are furnished complete with motor and base, connected, ready for use on 110 or 220 volt direct current shop circuits.

The Carnegie Institute Extension.

The great extension to the Carnegie Institute, Pittsburgh, Pa., is rapidly nearing completion. It represents an expenditure of \$5,000,000, the munificent gift of Andrew Carnegie. The new building almost obscures the original structure, which itself, a previous gift of Mr. Carnegie, cost \$3,000,000. It has a width of 400 feet in Forbes street and a depth of 600 feet. In addition to the portion devoted to the library, comprised within its walls are to be found art galleries, a museum, a music hall, a lecture hall, a restaurant and the general offices required for the supervision and operation of these many divisions.

The basement will be an exceptionally busy part of the building, as, in addition to the modeling and casting rooms for the art department, work shops will be installed, where the repairs necessary for the maintenance of the building will be carried out. The printing office and bindery used in connection with the library and the large lighting and heating plant necessary for illuminating and warming such a vast building are also situated in the basement.

The scheme of workmanship is planned on a very high standard. The architects, Alden & Harlow, based their designs on the leading institutions of this type, both in Europe and this country. The heating and lighting plant when completed will form a very interesting example of an installation that both in workmanship and appearance will be of very high quality, the specification on these points being very rigid. The contract for the electric generating plant has been let to the National Electric Company, Milwaukee, Wis. It consists of five 300-kw., 120 revolutions per minute, 12-pole, 125-volt, direct current engine type generators. These machines will be of the latest design and best material, of massive though pleasing appearance, the heaviness in outline being relieved by the elliptical section of the frame. All visible bolts will be nickel plated, and the field coils will be taped on the outside and finished with a wrapping of fish net cord. The terminal boards will be of Vermont marble. The total net weight of each generator will be about 55,000 pounds, the armature and commutator accounting for 18,000 pounds. On the final test the generators will be expected to withstand a momentary overload of 75 per cent. without flashing and to operate from no load to 25 per cent. overload without shifting the brushes.

The Master Car Builders' Association has installed in the engineering laboratories of Purdue University, Lafayette, Ind., the drop testing machine designed by its committee for the standard tests of car couplers.

Rolled Steel Car Wheels.*

BY SAMUEL M. VAUCLAIN, SUPERINTENDENT BALDWIN LOCOMOTIVE WORKS.

The requirements for car wheels have risen very rapidly during the last few years, and wheels which were at one time satisfactory are now taxed beyond their limit by the more severe service which is expected of them. The loads upon the wheels have increased from 50 to 100 per cent., whereas it has been impossible to increase the weight of the wheels in a like proportion because the limiting factors, such as frogs, switches, &c., were fixed before the modern 100,000-pound capacity car came into use.

The manufacturers of chilled cast iron wheels have been very successful in meeting the demands which have been made upon them. Careful design and selection of the best mold and approved method of casting have accomplished much. The chilled iron wheel is distinctively an American product, and we have occasion to feel proud

and sufficiently low in price to compete with and eventually supersede the chilled cast iron car wheel that has so long held sway in this country.

Fig. 5 shows the etched section of a long ingot. This is the base of all processes necessary to make a first-class solid forged, high carbon, rolled steel wheel, cheap enough to compete with cast chilled wheels and good enough to compete with the high priced steel tired wheels. The process of manufacture is simple. The ingot is cut into sections, as shown in Fig. 6, each section being of sufficient weight to make a wheel, and the upper or segregated section is discarded.

Fig. 7 shows this process, the ingot being handled by an immense and powerful manipulator, or mechanical man. This device is almost human in its action, reaching into the furnace, taking out a blank and deftly putting it under the press. Each of these sections is then pressed into shape under a huge 5000-ton hydraulic press, the blanks being handled by mechanical means, as shown in Fig. 8. From there by overhead cranes the blank is transferred to the rolls, where it is subjected to enormous



Fig. 1.—Sample of Shelled Tire.

of the achievements which have been made in the development of this wheel. But the brittleness of the flange, inability to resist the heating effect of the brake shoe, shelly treads, as shown in Fig. 1, producing flat spots, and the internal stresses induced in the casting of such a wheel have created a field for a wheel which would be free from these objections. This demand has been met by the introduction of the steel tired wheels. Such wheels are manufactured with both plate and spoke centers. Steel tired wheels of many designs have been made, their centers being of cast iron, cast steel and wrought iron, and of both plate and spoke form, those of wrought iron being very difficult to produce cheaply to meet the competition of the world because of our high priced labor.

Fig. 2 shows three stages of the process of making wrought iron spoke centers. The spokes are made by bending pieces of iron in the form of a triangle. These are fitted into a round ring, the hub is then filled with iron and the wheel is heated and hammered under dies. Fig. 3 shows two stages of the manufacture of wrought iron plate centers.

Standard wheels of the types so well known and in use for several years under passenger and other high priced equipment are too expensive, at least they are so considered, to put under freight equipment.

Even these wheels suffer from shelly spots on the tires or a variation in the density thereof unless the utmost care and expense attend their manufacture.

Fig. 4 shows an etched section of a defective tire and of a good tire, the good tire being dense and perfectly homogeneous, whereas the defective tire shows a structure which is not uniform in density and which contains other structural defects.

It is thus we find an aching void in the wheel business. We must be able to produce a wheel, safe, durable

* Read before the Mechanical and Engineering Section of the Franklin Institute, Philadelphia, December 1, 1904, and reprinted from the *Journal of the Institute*.



Fig. 2.—Forged Steel Tired Spoke Wheel.

pressure and revolved at a high rate of speed, emerging a perfect wheel.

The method of rolling and arrangement of rolls are shown in the diagram on Fig. 9, from which it will be seen that the arrangement is such that thorough and heavy work can be put on the tire of the wheel.

If we desire the plate of these wheels to be of the dished or curved form the same is easily accomplished by placing it in the 5000-ton press and gently squeezing it into shape, as shown in Fig. 10.

Fig. 11 shows three etched sections of a forged wheel. The quality of the material is unquestionable and the wheel possesses all the characteristics of the good tire and none of those of the defective tires, which I have already shown and which I am again showing on the screen for the purpose of comparison.

The judgment formed by an examination of the etched section is confirmed by the results of the physical and chemical tests.

Fig. 12 shows sections of wheel from which drillings were taken for analysis; the results are surprisingly uniform and indicate the greatest uniformity in the wheel. Tests have also been made by supporting the wheels hori-

zontally upon a ring underneath the face of the tread and allowing a weight of 2240 pounds to strike the wheel from various hights. It took 13 blows to break a 36-inch wheel, 8 of the blows being from a hight of 30 feet.

Another wheel was tested in running position, and, striking with a weight of 2240 pounds, it took 17 blows,

in place of 2 inches had no further effect than to cause the rim to expand and to draw the hub down slightly. No fracture was produced, and the heat given out by the molten iron was sufficient to heat the tread for 2 or 3 inches to a dull cherry. After withstanding this test there need be no fear of breakages as the re-

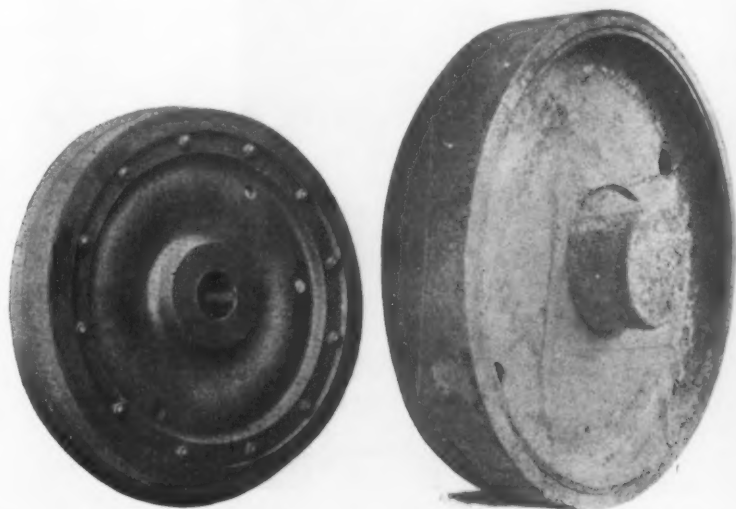


Fig. 3.—Forged Plate Steel Tired Wheel.

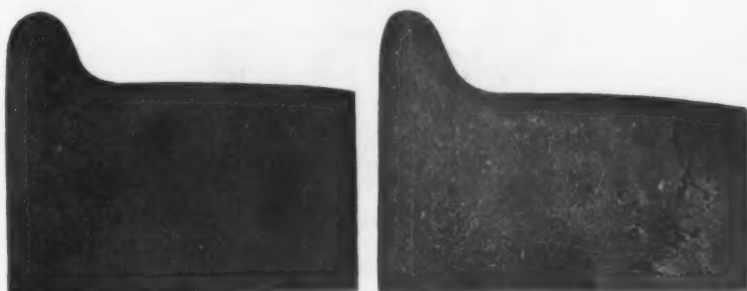


Fig. 4.—Section of Good and Poor Tire.



Fig. 5.—Cross Section of Ingot.

9 of them being from 25 feet, to fracture the wheel from rim to hub.

Fig. 13 shows a wheel after it has been subjected to this test, and it at once illustrates the severity of the test and the ability of the wheel to resist any stress which it is liable to encounter in service. It is perfectly clear that the use of this wheel would banish broken flanges from the list of causes leading to wrecks and damage to property.

One of the most severe tests that can be imposed upon the chilled iron wheels is that generally known as the thermal test. This consists in pouring a ring of molten iron $1\frac{1}{2}$ inches thick and 4 inches deep against the tread,

sult of heating of the tread by application of brake shoes.

Now then, as to the approximate value of these wheels, as compared with cast chilled wheels of the very best material and manufacture. The comparison of the cost per 10,000 miles of the two types of wheels is shown in the following statement:

Solid Rolled Wheels.	
Cost of pair of rolled wheels.....	\$54.00
Cost of four turnings.....	2.40
Cost of four removals and applications.....	2.40
	<hr/>
	\$58.80
Less scrap value.....	8.75
	<hr/>
Net cost.....	\$50.05
Mileage, 350,000.	Cost per 10,000 wheel miles, \$1.43.



Fig. 6.—Blooms from Which Wheels Are Rolled.

no cracks to develop within two minutes. This test is designed to secure a wheel which will not crack by the heat developed by the application of the brake shoes, and it is considered by manufacturers of chilled iron wheels to be a very severe requirement. A number of rolled wheels have been subjected to this test without injury to them. The heat from a ring of metal 4 inches wide

Chilled Iron Wheels.	
First cost of pair of chilled iron wheels.....	\$18.00
Cost of boring and mounting.....	.80
Cost of removal and application.....	.80
	<hr/>
	\$19.40
Less scrap value.....	5.80
	<hr/>
Net cost.....	\$13.60
Mileage, 80,000.	Cost per 10,000 wheel miles, \$1.70.

It is usual for the railroads to determine the average cost of wheels by dividing the total yearly cost by wheel mileage made during that year. The statistics vary

which steel tired wheels are now exclusively used.

2. Passenger car equipment, in which the element of safety plays an important part.

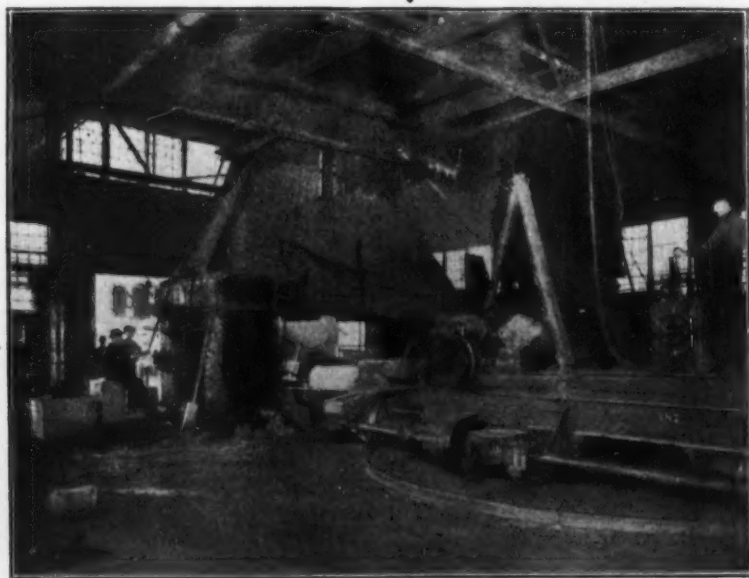


Fig. 7.—View of Manipulator.

Chemical Analyses.						Physical Tests.					
Test.	Carbon. Per cent.	Silicon. Per cent.	Phos- phorus. Per cent.	Man- ganese. Per cent.	Sulphur. Per cent.	Test.	Size of test. Inches.	Elastic limit. Pounds.	Ultimate strength. Pounds.	Elonga- tion. Per cent.	Reduct'n of area. Per cent.
Flange	0.610	0.268	0.043	0.87	0.050	Flange	2 x 0.619	50,300	126,600	12.0	19.0
Tread	0.614	0.268	0.042	0.90	0.048	Tread	2 x 0.619	50,600	124,600	10.0	12.0
Face	0.620	0.267	0.041	0.86	0.052	Face	2 x 0.619	52,600	121,000	10.0	13.0
Rim	0.614	0.270	0.042	0.91	0.052	Rim	2 x 0.619	52,000	121,300	12.0	16.3
Plate	0.602	0.265	0.043	0.89	0.051						
Hub	0.608	0.265	0.042	0.86	0.048						

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Test.	Carbon. Per cent.	Silicon. Per cent.	Phos- phorus. Per cent.	Man- ganese. Per cent.	Sulphur. Per cent.	Test.	Size of test. Inches.	Elastic limit. Pounds.	Ultimate strength. Pounds.	Elonga- tion. Per cent.	Reduct'n of area. Per cent.
Flange	0.640	0.175	0.042	0.86	0.050	Flange	2 x 0.619	52,000	129,000	14.0	20.0
Tread	0.650	0.177	0.042	0.86	0.050	Tread	2 x 0.619	51,600	124,300	10.0	13.0
Face	0.650	0.180	0.045	0.86	0.050	Face	2 x 0.619	52,300	128,600	10.0	15.0
Rim	0.654	0.175	0.044	0.85	0.051	Rim	2 x 0.619	51,300	124,000	11.0	16.6
Plate	0.660	0.180	0.046	0.84	0.049						
Hub	0.666	0.180	0.044	0.84	0.050						



Fig. 8.—View of 5000-Ton Press.

from \$1.65 to \$1.78, the average closely checking the foregoing estimate.

The natural field for the rolled wheel is:

1. The severe service of engine and tender trucks, in

3. Heavy freight car equipment, for which the chilled iron wheel has proved inadequate.

The wheels, however, are adaptable to lighter service, and statistics indicate that it would be

profitable to employ them in street car service.

The following statement shows the cost of maintenance of wheels in street car service in various parts of the United States. These figures are practically based upon the use of the usual type of chilled wheel:

	Per 10,000 miles.		Per 10,000 miles.
Northwestern	\$1.61	Chicago	\$3.04
Pacific Coast.....	1.15	Canadian	3.04
Middle West.....	2.14	Philadelphia	1.65

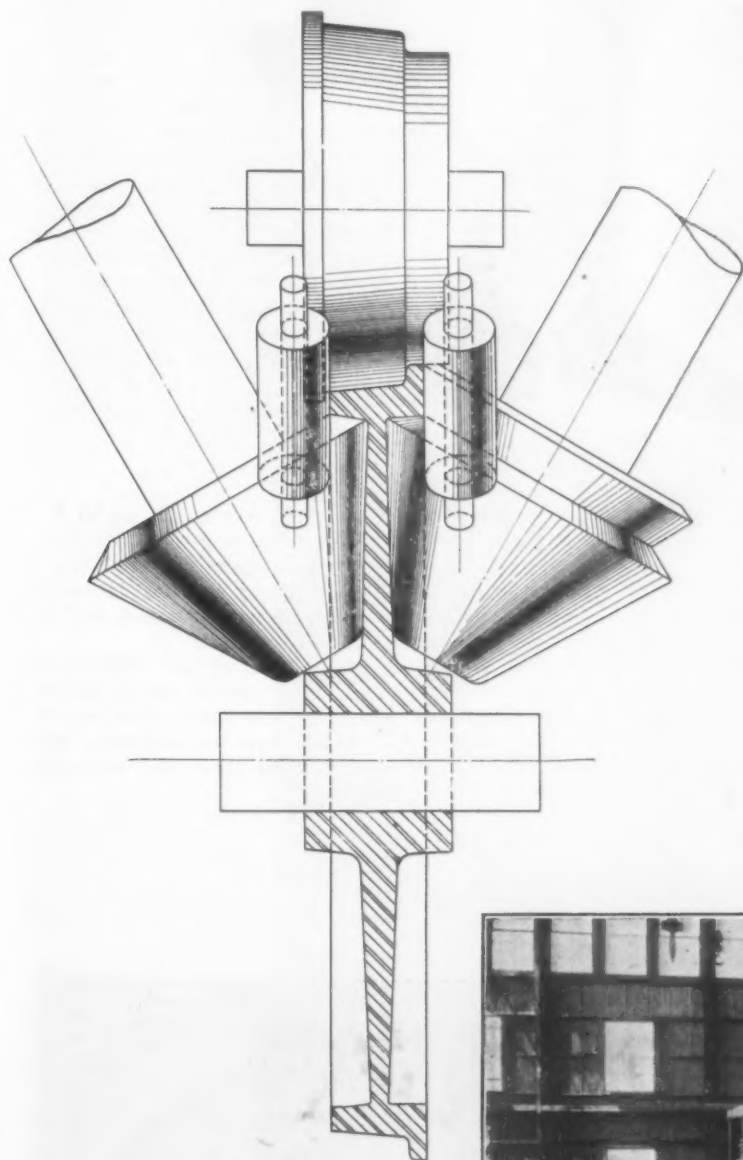


Fig. 9.—Diagram of Rolls.

The roads carrying the greatest number of passengers will generally show the greatest cost, as the constant braking necessary, because of frequent stops and slipping resulting from rapid acceleration, is very hard on the chilled iron wheel. By the rough usage at many crossings many wheels are put out of service by chipping off the flanges. The rolled wheels are entirely free from this defect, and their adoption by street railway companies should prove to be very economical. Progressive street railway managers have been quick to recognize the advantages that the steel wheel possesses over a cast iron one, and even the greater expense of the solid forged steel wheel has not deterred its introduction, and it is the general opinion that marked economy has resulted therefrom.

We are already making solid forged steel wheels for this service in large quantities.

Fig. 14 shows a group of solid forged and rolled

wheels for railroad service; the fine appearance of these wheels can be seen from this photograph.

As the mighty oak had its origin in the small acorn, so the great railroad systems of to-day rest upon the stability of the flange of a car wheel.

Upon this small section of metal, about $1\frac{1}{4}$ inches square, depend the lives of millions of passengers and the value of merchandise of incalculable price. Passengers amid the comforts and luxuries of our modern service hardly realize the vital importance of this piece of metal, but engineers and railroad managers do, and they have been directing their best endeavors to this most vital element of railroad equipment.

Features of Canadian Trade.

A Bounty on Rails.

TORONTO, February 17, 1905.—It turns out that the Dominion Government provided for the domestic steel industry, if not better than it intended, at least better than the public suspected. In addition to the aids of which everybody was aware, there is a bounty of \$3 a ton on rails. The discovery that the country is liable for such a charge was come upon in the ordinary way of business. An account for \$60,000 was handed in by the Algoma Steel Company, which thereby presented a claim for a bounty at the rate of \$3 a ton on 20,000 tons of steel rails. In regular course the account was referred to the Auditor-General, who declined to pass it until he was fully satisfied that there was law warranting his approval of it. It was not a question whether the quantity of rails was produced as stated, but whether there was a bounty on rails. It was not generally understood, or even considered possible, that there was, and the Auditor-General was unwilling to accept the claimant's reading of the law. Accordingly the matter was submitted by the Government to a prominent lawyer, A. B. Aylesworth, K. C., who

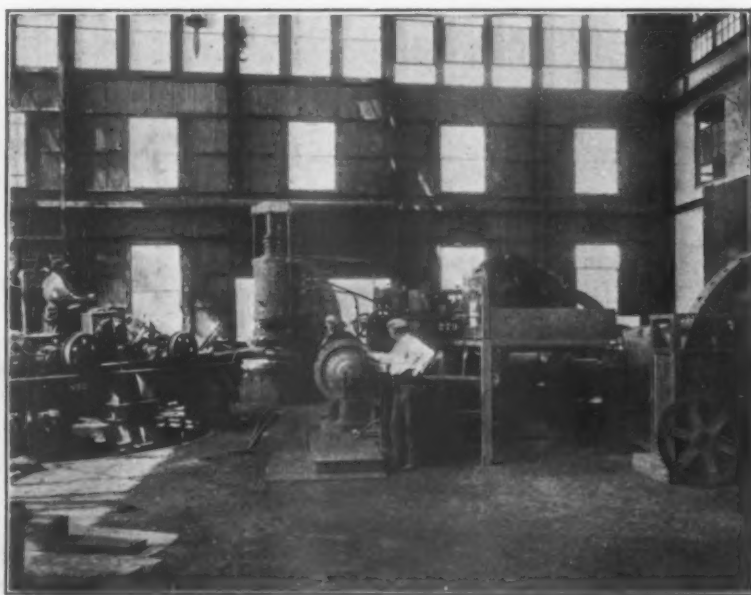


Fig. 10.—View of Rolling Machine.

returned the opinion that there is statutory authority for paying a bounty of \$3 per ton on steel rails. Acting on this advice, the Auditor-General passed the account and a check was given out the other day for \$60,000, payable to the Algoma Steel Company on account of rail bounty.

Authority for the claim is held to be provided in subsection B of the first section of the act passed in 1903 to

amend the statute respecting bounties on iron and steel. Subsection B is as follows:

On rolled angles, tees, channels, beams, joists, girders, or bridge building or structural rolled sections, and on other rolled shapes not round, oval, square or flat, weighing not less than 35 pounds per lineal yard, and also on flat eye bar blanks, when sold for consumption in Canada, a bounty of \$3 per ton.

ment did not know, apparently did not dream, that it was liable for a bounty. If it had known, it possibly would have modified the price accordingly. If, as some of the Government organs say, the bounty is beyond the intent of the act, and is based wholly on "faulty wording," it would seem that legislation would be in-



Fig. 11.—Etched Sections.

Steel rails it appears are considered to be comprehended though not specifically named in the subsection. While the term "structural rolled sections" may be regarded as having a generally accepted technical meaning that excludes steel rails from the scope of its significance, the phrase, "other rolled shapes not round, oval, square or flat," is probably embracing enough to take in rails. Mr. Aylesworth's opinion has not been published, but it is assumed to be based on the fact that the latter of the expressions quoted is a very broad one. It is scarcely probable that the newspaper statement which credits him with regarding rails as rolled structural sections is correct.

An immediate effect of the Government's concurrence in this interpretation of the Bounty law is to add \$3 a ton to the price the Government contracted to pay for the Algoma Steel Company rails it is laying on the In-

tercolonial line. Whatever was the price which the Minister of Railways and Canals agreed to give for these rails it is now increased by the \$3 per ton, which the Finance Department is handing out in bounties to the company. When it ordered the rails the Govern-

ment did not know, apparently did not dream, that it was liable for a bounty. If it had known, it possibly would have modified the price accordingly. If, as some of the Government organs say, the bounty is beyond the intent of the act, and is based wholly on "faulty wording," it would seem that legislation would be in-

	Per ton.
Regular duty.....	\$7.00
Rail bounty.....	3.00
Billet bounty.....	2.25
Pig iron bounty.....	2.25
Provincial pig iron bonus.....	1.00

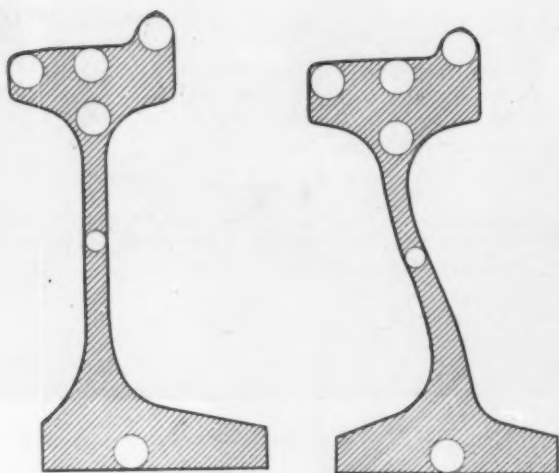


Fig. 12.—Results of Chemical and Physical Tests.

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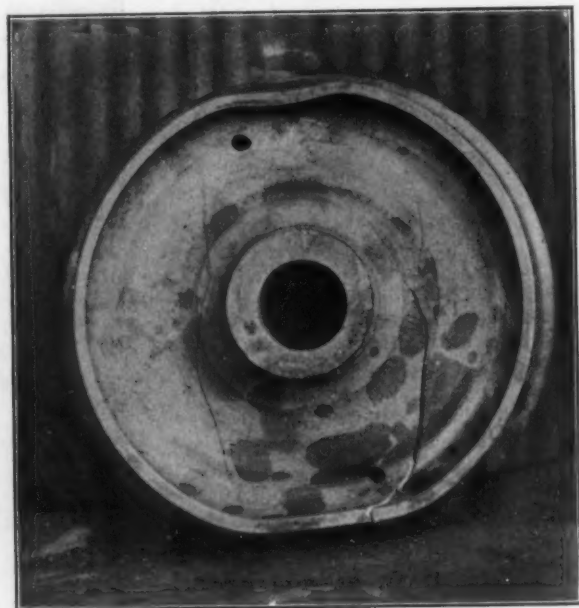


Fig. 13.—Rolled Wheel After Drop Test.

Every one of these items, however, except the rail bounty, is subject to modification. The duty may be increased up to \$10.50 *pari passu*, with any abatement from the regular selling price at which imported rails are brought in. As for the bounty on the billets of

which the home rail is made, and the bounty on the pig iron from which the billets are made, they are here given as if purely Canadian ore is used. As a matter of fact, it is mostly Minnesota ore that is so far used at the Sault works, and the current bounty on pig iron made here from foreign ore is \$1.50 per ton, the same rate being paid on the billets made from foreign material in Canada. Further, the provincial bonus of \$1 per ton is payable only on pig iron made in Ontario from Ontario ore, and the rate falls below \$1 as soon as the total output of the province in any year exceeds 25,000 tons, as the distribution for the year is limited to \$25,000.

This is not the first time that the Government and claimant have taken different views of the meaning of the Bounty law, nor the first time that the claimant's view has been upheld. Two years ago the Dominion Iron & Steel Company put in a bounty claim which was contested, the Government's legal adviser in that case apparently construing the act adversely to the company. The company's claim was for pig iron which had been converted into steel. There was no legal or other objection to paying on iron because it was transformed into steel. The point taken was that, owing to the company's continuous process, there was no intermediate product to which the usual definition of pig iron could be ap-

plied, of whom the following are named: J. C. Hunter of Duluth, De C. O'Grady and Stamford White of Chicago. Mr. O'Grady is brother of the general manager of the Crown Bank, Toronto. The object of Mackenzie & Mann is that of railway men—to create traffic for their road. Besides producing ore for consumption in its own furnace, the Atikokan Iron Company, as the new concern is called, will mine ore for shipment to other consumers, whether in Canada or in the United States. As at present planned, its mine operations will be on a scale of 300,000 or 400,000 tons a year. There seems to be the fullest confidence in the quality of the Atikokan ore, of which the deposits are well known to be extensive.

Another outgrowth of Mackenzie & Mann enterprise is the Canadian Coal & Ore Dock Company, which will construct coal and ore docks at Port Arthur, with a storage capacity of 200,000 tons for coal and of 100,000 tons for ore. It is stated that interests connected with the Pittsburgh Coal Company will be associated in this project. The company will handle all the product of the Atikokan Iron Company.

The agreement, to which the town is a party, cannot be performed until the ratepayers of the latter have approved it by vote. A by-law embodying it will have to be prepared and submitted to the taxpaying citizens at the

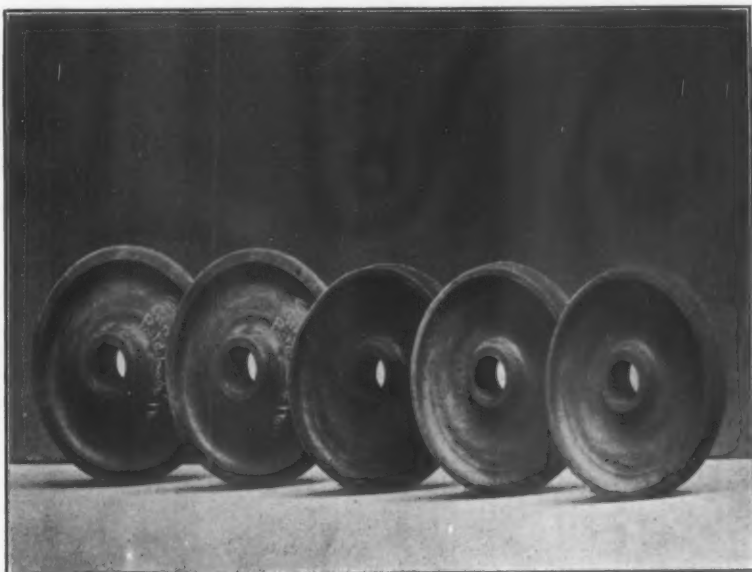


Fig. 14.—Rolled Steel Wheels.

plied. The matter went before the Exchequer Court and the company won.

Port Arthur an Iron Center.

What is said to be the final agreement for the establishing of a blast furnace at Port Arthur was signed in Toronto two days ago. The business was concluded in the office of Mackenzie & Mann here, the men who brought Port Arthur into direct connection with Winnipeg by the construction of the Ontario & Rainy Line and the Winnipeg & Eastern Railway. These lines are now part of the transcontinental system, the Canadian Northern Railway, which the same men of enterprise are fast completing. The parties to the agreement thus closed were the following: Mackenzie & Mann, represented by Hugh Sutherland; the town of Port Arthur, represented by Mayor Vigars. With the latter were associated two prominent citizens of Port Arthur, Geo. T. Marks and J. T. O'Connor. Cash to the amount of \$1,000,000 is to be raised. Of this \$300,000 is to be applied to the purchase of the Atikokan iron deposits and \$700,000 is to be expended on the construction of a 100-ton blast furnace at Port Arthur, and on other accounts. One object is to establish coke ovens. Port Arthur is to furnish a site of 40 acres. The million dollars is to be raised by the issue of 6 per cent. first mortgage bonds. Mackenzie & Mann are subscribing for \$400,000 of these, the town of Port Arthur is to take \$300,000, and the remainder goes to a group of Ameri-

polls. There seems every reason to expect that they will sanction it, for as a body they are very desirous of promoting the development of the town as a terminal point and an industrial center. As soon as they have ratified the action of their Council as taken by the Mayor, the work of construction is to be begun.

Notes.

N. W. Rowell, K. C., Toronto, counsel for the Lake Superior Corporation, stated yesterday that the rail mill at the Sault had orders enough on hand to keep it busy until next September. Its output in January exceeded that of any previous month. The blast furnaces are also, he says, turning out more product than ever before. Ore from the Williams mine, near Sault Ste. Marie, is said to be going forward to the furnaces at the rate of 35 tons a day.

Some days ago the organization of the Shipbuilding & Investment Company was completed at Halifax. A site for the works has been fixed upon at the eastern side of that harbor. The directors elected are the following: Mr. Hunter of Swan & Hunter, Newcastle-on-Tyne, England; George S. Campbell, George Stairs, John Longard, B. F. Pearson and Ald. J. A. Johnson. George S. Campbell was chosen as president, Ald. J. A. Johnson as vice-president, and B. Fred. Pearson as secretary-treasurer.

C. A. C. J.

Rolls for Uneven Angles.—VI.

BY WILLIAM HIRST.

Splice Bars.

This section, Fig. 13, was intended for a splice bar, and for this purpose it was required that the end of the light flange and the tapered part of the heavy one should fit accurately between the head and flange of a rail. To fulfill its function properly the edge of the light flange should be full to the point *a* and true to the template.

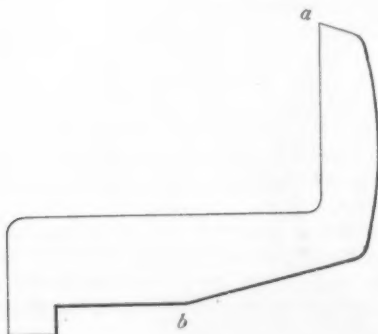


Fig. 13

At a glance the roll designer sees that this is more than ordinarily difficult, as the point is an inside corner and an acute angle.

There are two common expedients for bringing out corners on a bar, as follows, preferred in the order named: One is to set the corner opposite the opening

cannot be imposed directly against the point for the purpose of forcing it. Hence if the point is to be brought out the first named method must be employed. As the point is an inside corner, it would require a series of passes built up from a pass set as in Fig. 2 if the section was to be rolled out as in its final shape. This position, while not an impossible one, is very unfavorable for good results. As stated before, the position of Fig.

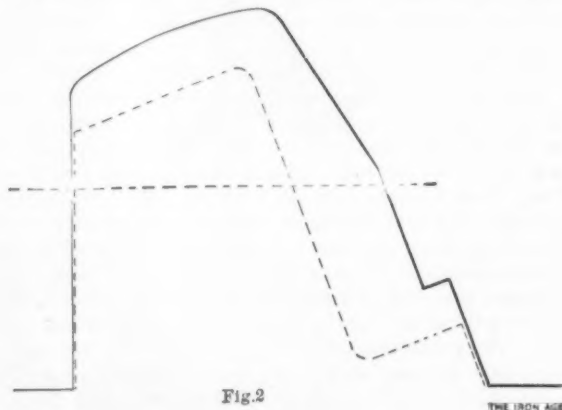


Fig. 2

2, inclosing the essential outline of the section within one roll, will produce the most uniform degree of accuracy, but to obtain the best general result as a whole a compromise in the position of the passes seems to be warrantable. While the highest degree of accuracy in size is much to be desired, it is equally important that the section shall be perfect in all its details. As shown, it is extremely difficult, if not practically impossible, to

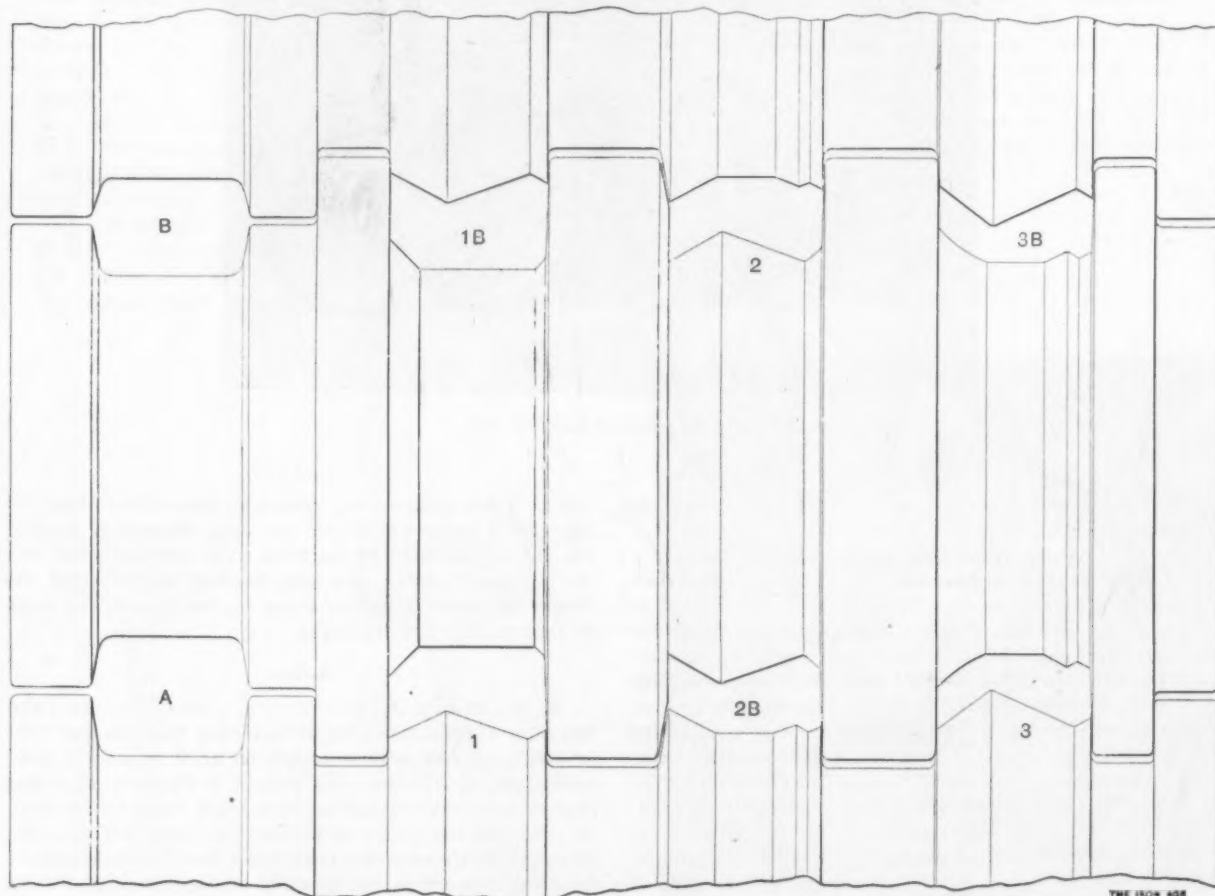


Fig. 24

in the pass and to apportion the draft so that the metal will be forced beyond the confines of the pass to be pinched between the rolls; the other is to so set the pass in the rolls that the draft will cause the metal to flow into the corner, or, rather, to force it therein. Where the angle springing from this point is more or less obtuse the feasibility of the method varies accordingly, but where the angle is acute, as in the case of Figs 13, the probability of forcing a sharp corner is remote. In this instance this applies particularly because the draft

work up the point of an acute angle as at *a*, Fig. 13, unless it can be brought into such a position that it will come into the opening between the rolls. To do this it would necessitate setting the pass as in Fig. 2, which is obviously a most impracticable position for effective work. Under these circumstances a more open position must be sought.

A bar of this kind is not required to be made of various thicknesses, but of one size. Having to fit into another, any considerable variation in size would con-

demn it. In the consideration of a design for this section its position as a pass, the disposition of the draft and its treatment in the rolls generally should be with the object of producing a bar as nearly perfect in all its essential details as possible, modifying the provisions for securing one to bring others up to a common standard of excellence.

Although of minor importance in regard to the formation of the section, it is generally conceded that as far as an angle bar is concerned it is most convenient to work the bar with the inside down, in which position the water and scale most readily and quickly fall off. While rollers are adepts in the use of their tongs and skillful in a remarkable degree in bringing a bar into any position they may require it to be, yet whenever it can be done without sacrificing any essential advantage in working it is due to them to set a bar as nearly in a natural position as possible.

By natural position is meant that position which a bar would take if left free to revolve on its axis. A bar in that position is more readily picked up from the floor and entered into the rolls and is handled in all respects with less difficulty. The position of Fig. 2, with the heavy member hanging down, is correct in this particular as well as covering the entire outside of the

of the rolls and frequent readjustments to maintain alignment and size.

Whenever there are minor angles, a curvilinear outline such as appear on this section, or small shoulders or depressions in its surface, it is necessary that the relative positions of such should correspond in all the passes in which they may be formed; otherwise a corner formed in one pass would be rolled off in another. For the same reason that a bar having these features may enter and leave the rolls true and straight, guides are adjusted in front of the pass. But with these precautions the guide cannot be set close enough to prevent all side motion. It is, therefore, necessary that the pass itself must have some control over the bar.

In deep grooves the sides of the pass control the alignment, but in comparatively shallow grooves, such as would be the case with Fig. 13, the pass loses this control more or less, and the small points and curves in the outline of the section would be lost in places from the side motion of the bar. In a pass set in this position it will be seen also that the top roll would overlap the bottom on the inside, as the opening would have to be made in the midlength of the short flange.

A pass so set would require extreme care in the matter of adjustment, and unless the rolls could be kept per-

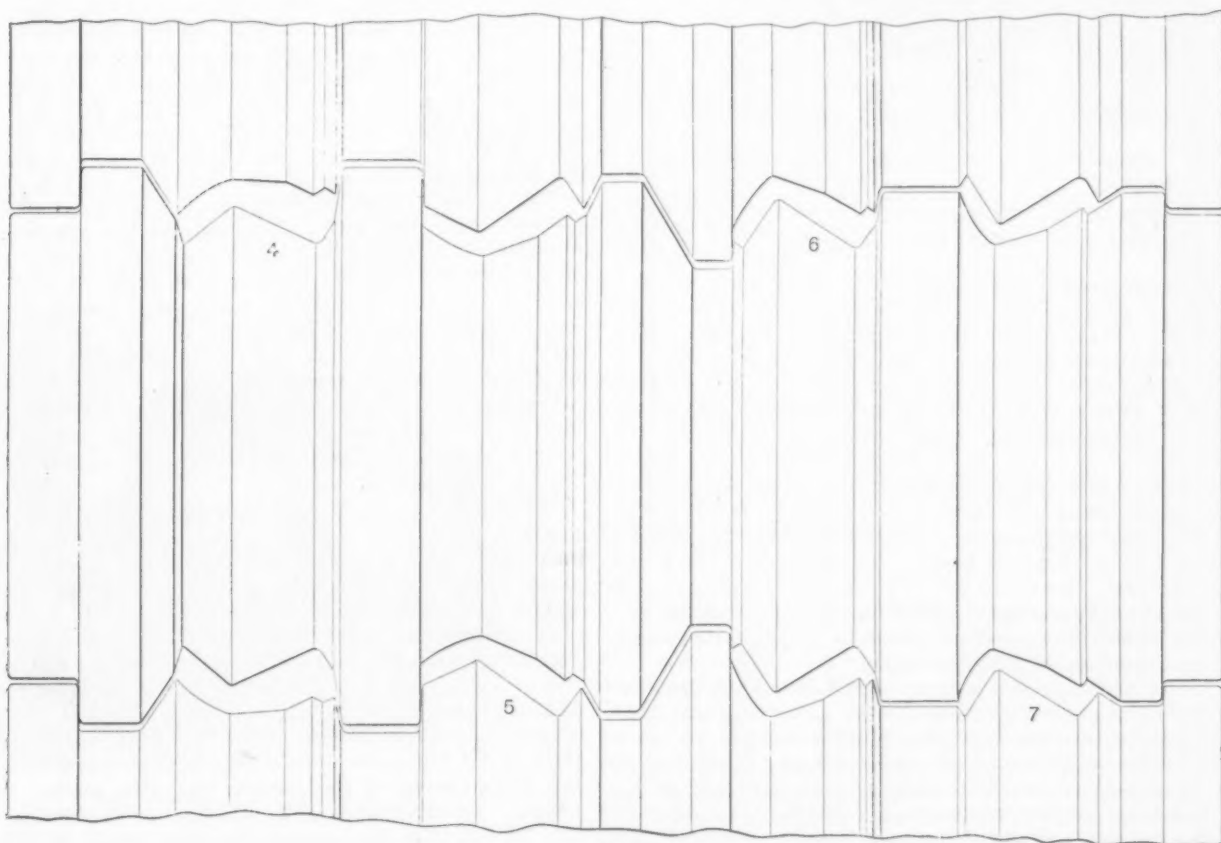


Fig. 25

THE IRON AGE

section. This position, however, has its objections. The section, it will be noticed, almost stands on end, making the greatest possible difference in the diameters of the pass, in which, should any considerable draft be attempted, the end thrust of the rolls would be so great as to make it exceedingly difficult, if not impossible, to keep them in place unless they are very heavy and of comparatively large pitch, much larger than those shown in Figs. 24 and 25.

If this position were considered essential as a finishing pass, as it no doubt would be by some, it may be rendered less objectionable by making the draft very light, merely using the pass as an extra to correct any slight inaccuracy in those preceding. Under ordinary conditions most likely to be met this position would need to be modified. There are two other feasible positions: Fig. 13, in which the pass would be opened in the middle of the short flange, and that shown as the last pass in Fig. 25. The one particular common to both these positions is that they will require much care in the setting

perfectly in line the section would be distorted or the short flange punched between the overlapping parts of the top and bottom rolls. The alternative, therefore, presenting the least objectionable features is to set the finishing pass in the position shown in Fig. 25. This pass could be made of the closed order, similar to No. 6, but the probability of the corners of the collar breaking away should give the preference to the open form, as shown. The essential features of the section, size and outline would be more easily obtained in a pass like Fig. 2, when set in comparatively large rolls under the conditions hereinbefore given, but all advantages weighed pass 7, Fig. 24, would generally be accepted. With point *a* excepted, the section is not difficult to make.

There are different modes employed to bring out corners according to the shape and purpose of the bar. One of the most difficult and the least likely of success is where the metal is to be forced into a groove or a corner such as *a*, Fig. 13. As with other bars, the finishing pass, with its light draft, is for the purpose of giving the sec-

Rolls for Uneven Angles.—VI.

BY WILLIAM HIRST.

Splice Bars.

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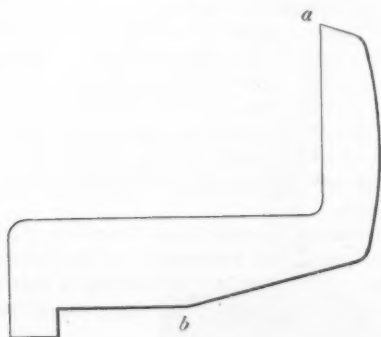
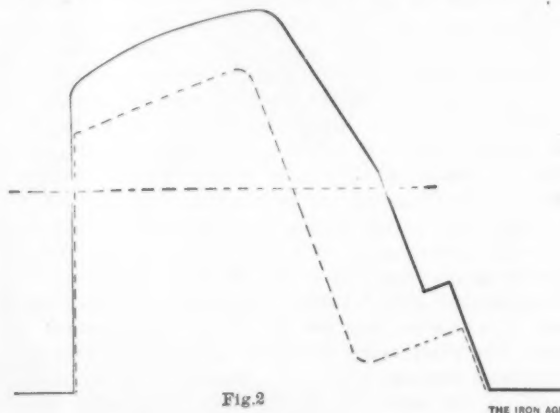


Fig. 13

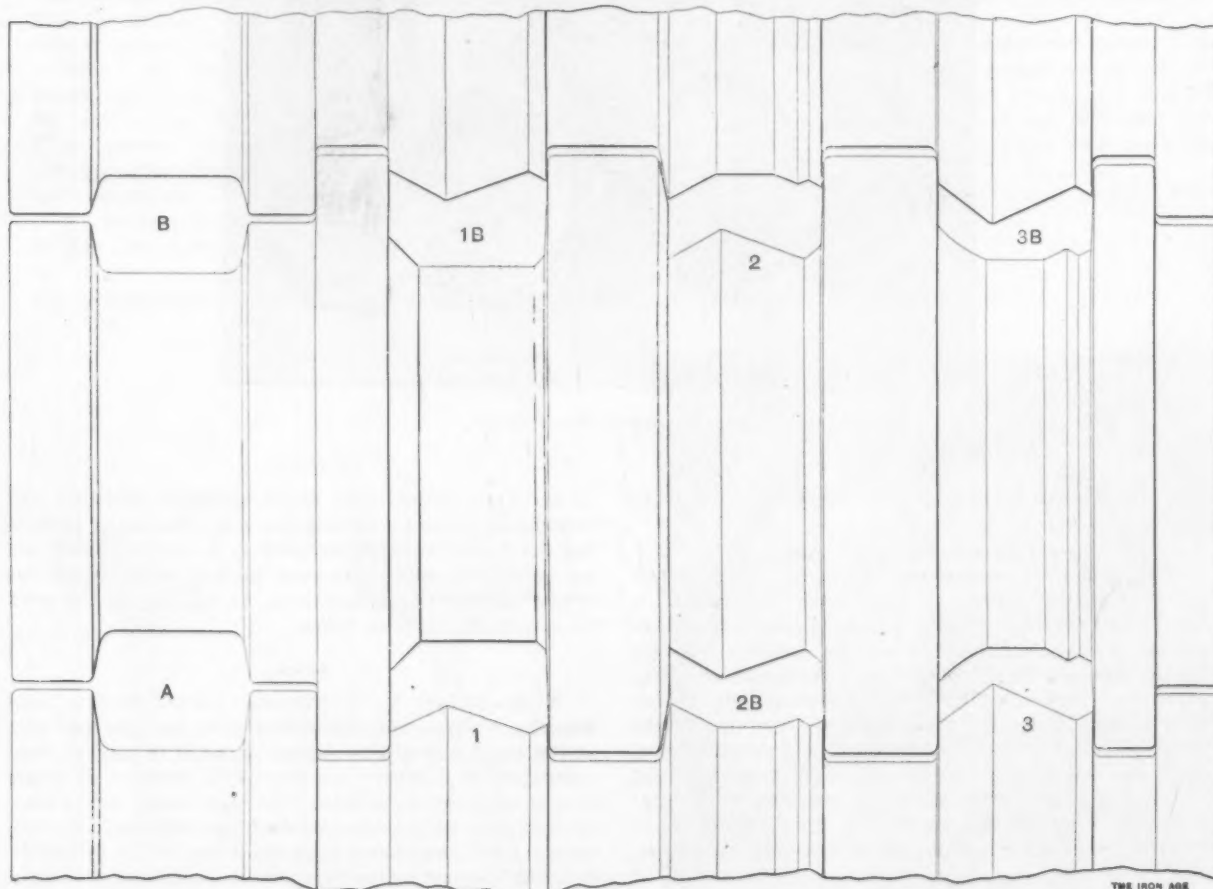
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There are two common expedients for bringing out corners on a bar, as follows, preferred in the order named: One is to set the corner opposite the opening

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2, inclosing the essential outline of the section within one roll, will produce the most uniform degree of accuracy, but to obtain the best general result as a whole a compromise in the position of the passes seems to be warrantable. While the highest degree of accuracy in size is much to be desired, it is equally important that the section shall be perfect in all its details. As shown, it is extremely difficult, if not practically impossible, to



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demn it. In the consideration of a design for this section its position as a pass, the disposition of the draft and its treatment in the rolls generally should be with the object of producing a bar as nearly perfect in all its essential details as possible, modifying the provisions for securing one to bring others up to a common standard of excellence.

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By natural position is meant that position which a bar would take if left free to revolve on its axis. A bar in that position is more readily picked up from the floor and entered into the rolls and is handled in all respects with less difficulty. The position of Fig. 2, with the heavy member hanging down, is correct in this particular as well as covering the entire outside of the

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A pass so set would require extreme care in the matter of adjustment, and unless the rolls could be kept per-

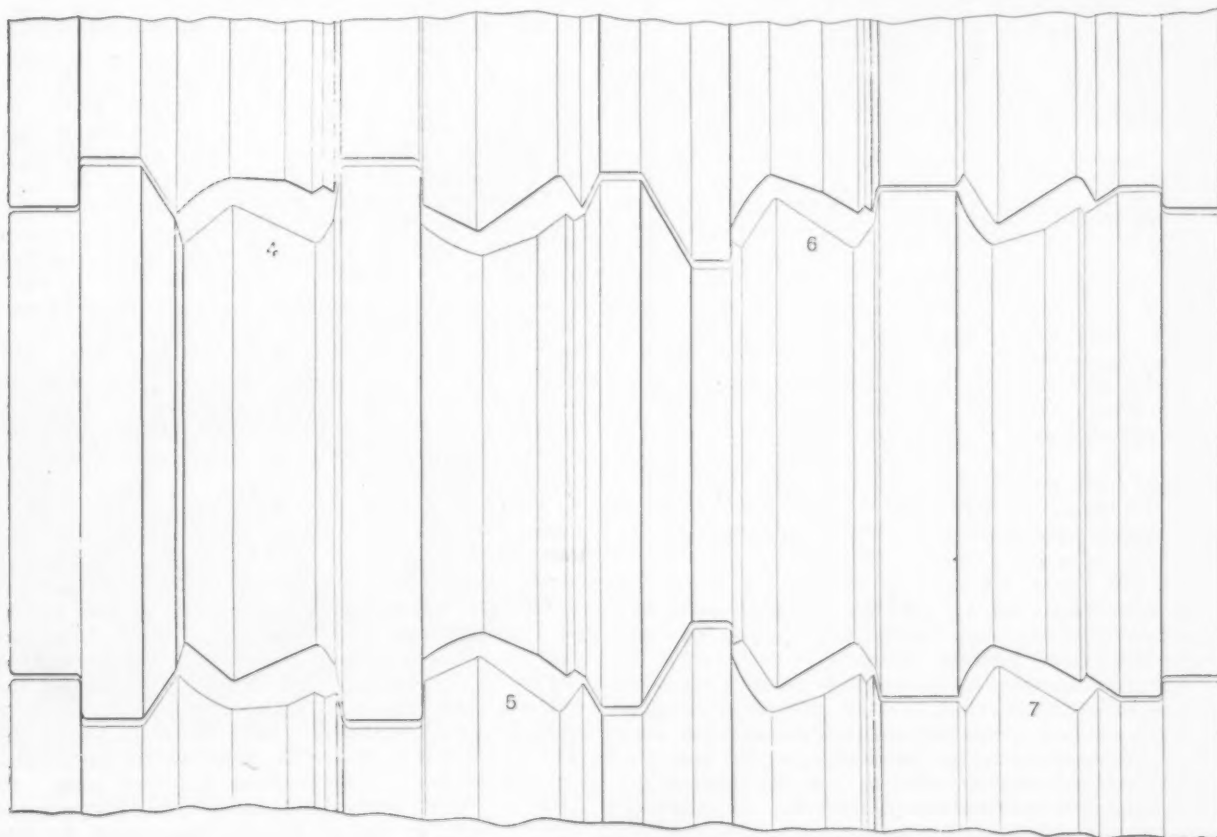


Fig. 25

THE IRON AGE

section. This position, however, has its objections. The section, it will be noticed, almost stands on end, making the greatest possible difference in the diameters of the pass, in which, should any considerable draft be attempted, the end thrust of the rolls would be so great as to make it exceedingly difficult, if not impossible, to keep them in place unless they are very heavy and of comparatively large pitch, much larger than those shown in Figs. 24 and 25.

If this position were considered essential as a finishing pass, as it no doubt would be by some, it may be rendered less objectionable by making the draft very light, merely using the pass as an extra to correct any slight inaccuracy in those preceding. Under ordinary conditions most likely to be met this position would need to be modified. There are two other feasible positions: Fig. 13, in which the pass would be opened in the middle of the short flange, and that shown as the last pass in Fig. 25. The one particular common to both these positions is that they will require much care in the setting

fectly in line the section would be distorted or the short flange punched between the overlapping parts of the top and bottom rolls. The alternative, therefore, presenting the least objectionable features is to set the finishing pass in the position shown in Fig. 25. This pass could be made of the closed order, similar to No. 6, but the probability of the corners of the collar breaking away should give the preference to the open form, as shown. The essential features of the section, size and outline would be more easily obtained in a pass like Fig. 2, when set in comparatively large rolls under the conditions hereinbefore given, but all advantages weighed pass 7, Fig. 24, would generally be accepted. With point *a* excepted, the section is not difficult to make.

There are different modes employed to bring out corners according to the shape and purpose of the bar. One of the most difficult and the least likely of success is where the metal is to be forced into a groove or a corner such as *a*, Fig. 13. As with other bars, the finishing pass, with its light draft, is for the purpose of giving the sec-

tion its final touch, correcting any inaccuracies due to the spring of the rolls, wear or other causes. Equally important with it is the next preceding, the leader, which must deliver the bar in such size and contour as to accurately fill it. It is in this leader and in those before it that the bar must be reduced and transformed.

In common practice the best and most effective method for producing sharp corners is to bring them, in one pass or another to the opening between the rolls, and by a special arrangement of draft force the metal into the interstices between them. This, however, is impossible with the section in its normal shape, and to render such means available the section must be bent open enough to make the end of the short flange conform to the side of the pass. This method requires that one pass shall be specially adapted to bend the section into its required form. In the case of a plain angle this is done in the finishing pass itself, but in this instance the finishing pass is not well adapted to that purpose for the reason that

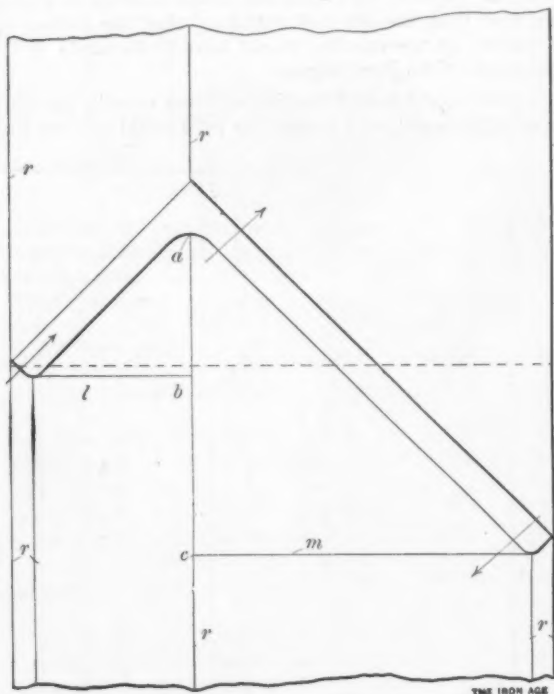


Fig. 3

the short flange would extend across the corner of the roll, which, for the sake of covering the section as much as possible, must be all but sharp.

To bend anything in such a pass would therefore be unwise, as it might mark the bar and would certainly wear the roll. For this purpose, then, the next preceding must be used. As far as the working of the passes is concerned it would be easiest to have the edges of the bar forming the sides of the pass parallel, which simplifies the collaring of the rolls considerably. This is illustrated in the difference between the two forms of passes in the preceding part of this article. On the general principle that it is not advisable to attempt a radical change, either by bending or by draft, this would make too much of a bend at one time.

Whenever a bend is too great there is liability of the rolls taking hold of the bar somewhat to one side or the other and thus spoiling it. In common practice 45 degrees is as much as can be safely bent in at one time. There are circumstances involved in bending any section that should be carefully weighed before the extent of the bend and the arrangement of the pass in which it is to be done are decided upon. As an instance, a section, such as an angle of even length of flange, could be bent to any reasonable extent by forcing it into a groove to which its details of length and thickness of flange had been made to conform. Its two flanges rest evenly on the slanting sides of the bending pass, centered therein by the point of the collar engaging the root of the angle. When the lengths of the flanges are uneven the difficulty in centering the bar in the groove increases. That the bar may enter evenly in such cases the long flange

should be bent so that the bar when in the bending pass may center with its edges and the root of the section touching at the same time, without leaning to one side or the other.

Such expedients are possible in the treatment of the ordinary angle, but with the case in point the circumstances are altogether different. In the former the bent portion is within the inside length of the flange and not at the root, as it must be in the case of the latter. In this case, Fig. 13, the flanges are too thick to be bent; also the outline of the back is not straight, and if it were possible to bend each flange the points of divergence could not be correctly located and would in all probability be rolled off. In any event they could not be made to conform as closely as if the flanges were kept straight and the bending done at the root or point.

As it is necessary to form corner fillets in the bending pass (No. 6), the sides thereof would have very little taper and the bar would be too wide to enter unless the groove were made very deep and the sides were flared off to receive it. If this were done it would still be difficult to center the bar and keep it so if the bending pass were made in a groove in one roll. To obviate this difficulty we may open the pass on opposite sides of the bar by forming one side of the pass on one roll and one on the other, thus making it practicable to rest the large flange on the roll before both rolls engage the bar. By making the half groove in the middle roll to receive the heavy flange, the bar will adjust itself in that groove before the collar in the top roll engages the light one. It may be noticed that both side collars work the bar toward each other in the bending effort, and should the bar swing to one side or the other one of the collars will check it.

The essential features of the section are formed after the fifth pass. The sixth, whose purpose has just been described, should have no more draft than to give it a hold on the bar sufficient to draw it through. It would seem at first that it would be better in the sixth pass to carry out the curve on the back of the short flange, as it certainly would make an easier bending surface. This would open the pass practically at the same point in the section as in the seventh, which makes it necessary to break the curve just below that point and carry the side out straight for the purpose of regulating that corner of the section.

This section is uneven in its outline, the length of its members and in their thickness. It is the latter circumstance that applies most particularly to the question of draft. That each member of the section may draw out concurrently the same ratio of reduction should be applied to all its parts. Beginning with the finished section, as represented in the last pass, building one on another, it is necessary that the different parts of the section should maintain the same relation as to their sectional area, particularly from the sixth up to the third, where the division of the billet into the parts forming the members of the sections has been made. In passes 1, 2 and 3 advantage is taken of the unobstructed flow to establish this relation in area, which, in this stage of the operation, may be done without injury to the structure and in a manner most favorable to the passes following.

The formation of the rib on the back of the bar in the second pass is not essential, as the raise is insignificant; the back could be made straight in this pass and the third, as it is in the first. Also, the collars which close the blank passes 1 B, 2 B and 3 B may be just turned straight across, if the flattening passes A and B are made in the same set as shown, as it would be impracticable to invert this set, as the order in which these two passes are worked cannot be reversed. If these passes were put elsewhere, as they should be in good practice, the set may be inverted and a fresh set of collars brought to work when one set had become worn or injured. The passes A and B are auxiliaries, their purpose being to flat the billet to a size suitable for the first shaping pass. Their number and arrangement depend on the size of the billet and their location in the train.

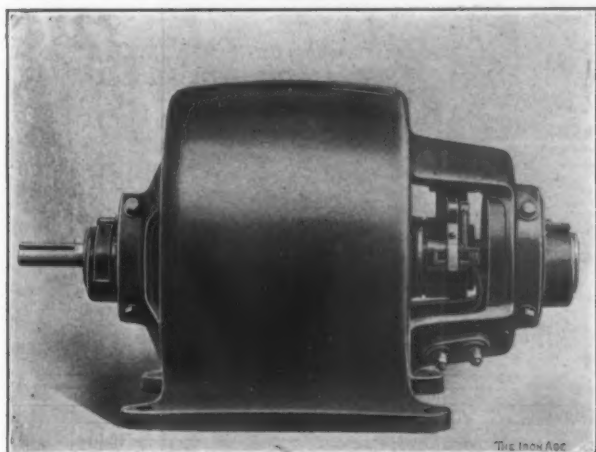
The essential feature to be considered in the production of this section is its completeness in form and

dimension. As stated in the beginning of this part, the pass set as in the position of Fig. 2 is best to promote these ends, both as regards fullness of form and uniform accuracy in dimensions, if these points were the only ones to be considered, but, as it is, the position would be considered wrong on all other points relating to the practical use of the rolls. In setting the section as in pass 7, Fig. 25, the end thrust of the rolls resultant from a setting, as in Fig. 2, which is one of the chief objections to this position, is obviated. But the almost absolute uniformity in the outside dimensions and form possible in the latter is to a degree impaired, as, no matter how careful a roller may be, there is almost certain to be a slight though inconsequential variation. Should the quantity warrant it, pass 7 may be set in a short pair of rolls by itself where the end collars, of even diameter, may be made to ride—that is, to run together at or slightly below the exact size required. This method of insuring the approximate size is uncommon practice and not to be used in general. With care, however, there need not be any unfavorable result from its use, as rolls are not infrequently run close for other reasons not so important.

(To be continued.)

Westinghouse Small Power Motors.

A new line of small direct current motors, to be known as the type R, has been brought out by the Westinghouse Electric & Mfg. Company, Pittsburgh, Pa. In their design the aim has been to produce reliable and efficient machines of small power which shall be easy to install, convenient to operate, require a minimum of attention and give continuous service throughout a long life. They are made in sizes from 1-6 to 1½ horse-power and are wound for 110 and 220 volts, the standard light-



The Westinghouse Small Power Motor.

ing pressures. The fields are shunt wound. Many features often omitted in small machines to reduce their cost are to be found in these motors. They are claimed to carry their rated full loads continuously without injurious heating. Commutation is practically sparkless between no load and an overload of 50 per cent., and within this range the brushes once set require no readjustment for change of load.

The yoke, brackets and poles are cast in one piece, giving a compact machine and rigidity between the support and the driving pulley or pinion. The bore of the bearing housing supports is the same as that of the field poles, so the armature can be removed by simply taking out one bearing housing without removing the pinion or pulley, unless it is larger than the bore of the field poles. The front end bracket is formed by three arms, which protect the commutator but allow ready access to the brushes. The two poles project inward in a horizontal plane and are magnetized by machine formed coils. These coils are treated with both a weather proof and an insulating compound to insure them against ordinary dampness and accidental

grounds or short circuits. They are covered with a number of thicknesses of tape to guard against mechanical injury. The coil supports are small L-shaped pieces of sheet brass, which are fastened to the poles by screws and which hold the coils firmly in place.

The bearings are ring self oiling, lined with phosphor bronze, and are mounted in separate housings, which may be adjusted in any position, so that the oil reservoirs hang vertical, whether the motor is set upon the floor or suspended from the wall or ceiling. The housings are designed so as to prevent the leakage of oil. Creeping of oil along the shaft is also prevented by an oil thrower or wiper, which protects the commutator and armature. The oil reservoirs are of ample capacity and the oil rings are easy to inspect, as they may be seen from the opening in the bearing housing.

Type R motors are usually furnished without bed plates, but may be supplied with bed plates of the uni-



Armature of the Westinghouse Small Power Motor.

versal type, equipped with drip pans and belt tighteners, and arranged for wall or ceiling suspension as well as for floor mounting.

The armatures are of the slotted drum type with imbedded coils, which are retained in the slots by hard fiber wedges, without band wires of any kind. The armature cores are formed of circular punchings of annealed soft steel, treated to secure high magnetic quality and freedom from aging. The armature cores are mounted upon extra heavy shafts to which pulleys or pinions may be secured with keys.

The brush holder arms are mounted upon rings, which are supported at three points inside the motor frame. The individual holders are of the sliding type. Pressure is exerted on the brush by a coiled spring so as to give uniform pressure over the width of the brush. The carbons are held radial at all times, there being no swivel action. A quick acting spring takes up any vibration that might occur, and insures continual contact between brush and commutator and obviates jumping or chattering of the brushes. There are two brushes on each motor, set diametrically opposite each other and easily reached through an opening in the front end bracket.

The commutators are made without necks—a construction which provides a maximum wearing surface and eliminates the possibility of the holders riding against the neck.

The starting rheostats furnished with type R motors have automatic no voltage release, and are very small and compact. The resistance is of the bar wound type with porcelain insulation to ground, and is thoroughly ventilated. The adjustment is such that the motor starts without jar or abnormal rush of current. Motors of this type are applicable to practically every operation within the range of their capacity where direct current is available—in the shop and in the home, in the store and in the office—for driving light machinery of many kinds.

Some unusual records have been made recently at the hoop mills of the Carnegie Steel Company, at Monessen, Pa. In 24 hours the 9-inch mill turned out 204,000 pounds of 1¼-inch steel. On Monday, February 13, the day turn made 130,900 pounds of 1¼ x 3 inch spring steel, being the largest output this mill has ever made on a single turn working 8½ hours. Within the past year or two the Monessen plant has been very much enlarged and new equipment has been added. A. B. Scott is superintendent.

The Brown & Sharpe New Vertical Spindle Milling Machine.

For many kinds of work the vertical spindle milling machine has advantages over the horizontal type. It allows the operator to see the work easily and follow any irregularity in outline, as in profiling or in the cutting of irregular slots. It is also well adapted to face milling operations, such as the cutting of angular ways and straight surfaces, and the work can usually be bolted directly to the table and supported without the aid of fixtures. The

even when the spindle is running at a slow speed suitable for a large cutter.

The general appearance of the complete machine is shown in Fig. 1. Fig. 2 gives a detail of the speed changing mechanism associated with the drive; Fig. 3 a detail of the spindle drive; Fig. 4 a detail of the spindle feed mechanism, and Fig. 5 a detail of the feed changing mechanism. The respective locations of all these parts on the machine are clearly shown in the half-tone, Fig. 1.

Through the mechanism shown in Fig. 2 16 spindle speeds are possible, varying in geometrical progression

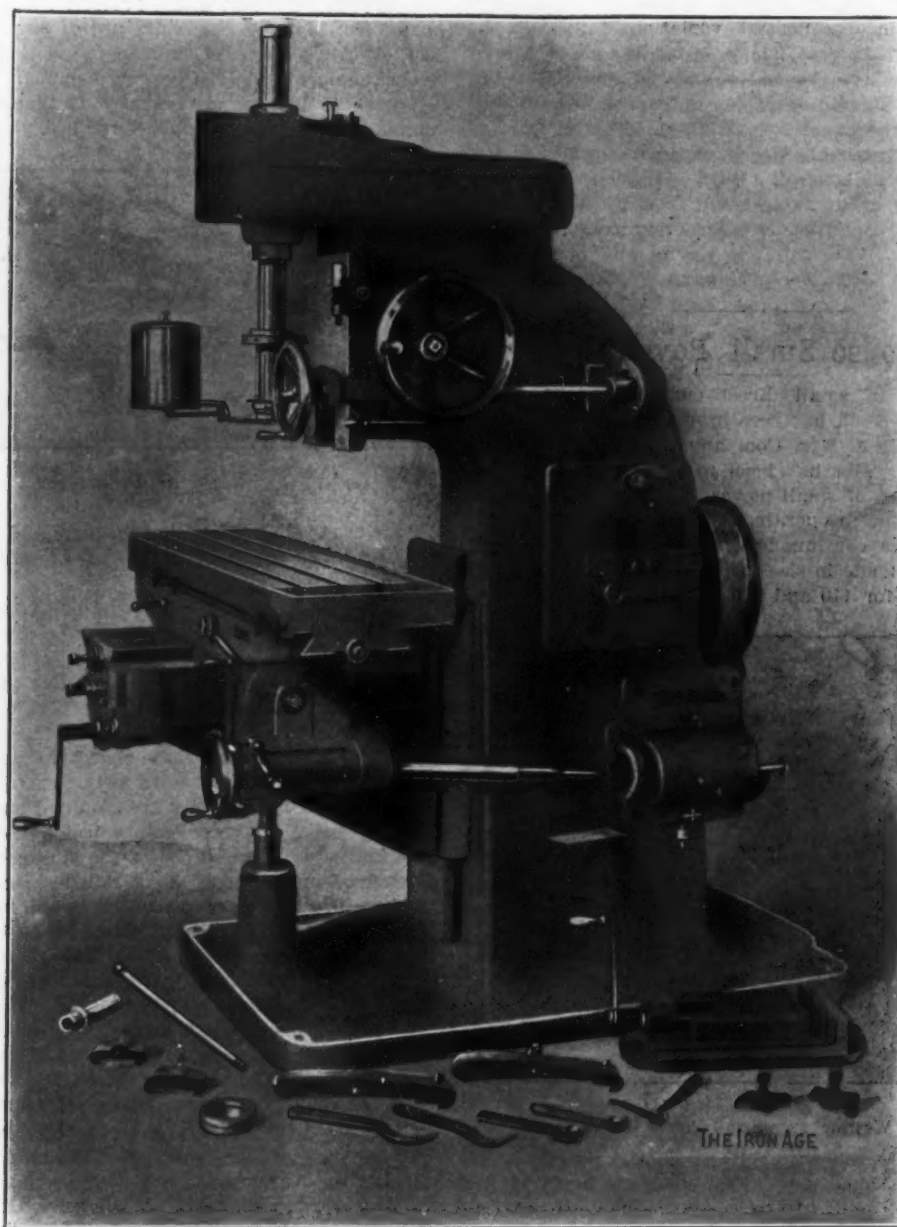


Fig. 1.—The Brown & Sharpe New Vertical Spindle Milling Machine.

machine illustrated herewith is an improved design of the Brown & Sharpe Mfg. Company, Providence, R. I., and is known as the No. 3 vertical spindle milling machine. In this machine has been incorporated the constant speed drive which has been a feature of the horizontal spindle milling machine. Some advantages of the constant speed drive are that the cone pulley is eliminated and the machine is specially adapted to motor drive from a constant speed motor, which can be run at its maximum efficiency at all times. In the belt driven form the main drive is direct from the countershaft to the driving pulley of the machine, which runs at a constant speed. The variable spindle speeds are obtained by gearing that has a ratio of from zero to 18 to 1. The full power of the belt is available under all conditions,

from 17 to 354 revolutions per minute. Power is transmitted from the driving pulley A and the long pinion B through the intermediate gear C to any one of the four gears of the cone. Keyed to the shaft D are two clutches, E and F, which engage the clutches on the gears C and H, respectively, giving a slow and fast series of speeds. For slow speeds the gear G is engaged with the clutch E, and for fast speeds the gear H with the clutch F. The lever O operates the clutches through an eccentric pin, P, and shoe, Q, and the intermediate gear C is shifted to a position opposite the required gear on the cone, as shown by the index plate, by the knob a, and is swung into position and latched by the handle b. On the other end of the clutch member E is a bevel gear, which engages the bevel gear on the vertical shaft I. On the upper end of

shaft I is the sprocket wheel J, Fig. 3, connecting by silent chain to the sprocket wheel K, which in turn drives the spindle when the locking pin L is engaged with the sleeve M for the direct drive. The horizontal runs of the chain are supported by steel blocks R, and slack is taken up by the pulley S. The back gears provide another series of speeds, as shown in Fig. 3. The back gears are thrown into engagement by the locking

through Y to the hand wheel B', connected with pinion Z, while Z meshes with the rack A' on the spindle carriage. When the feed power is in use both of the clutches mentioned are engaged. When the quick return is desired the clutch members on the worm wheel X and the collar Y are disengaged, leaving the pinion free to turn with the hand wheel B'. When the fine hand feed is to be used the clutch members on the shaft V and worm W

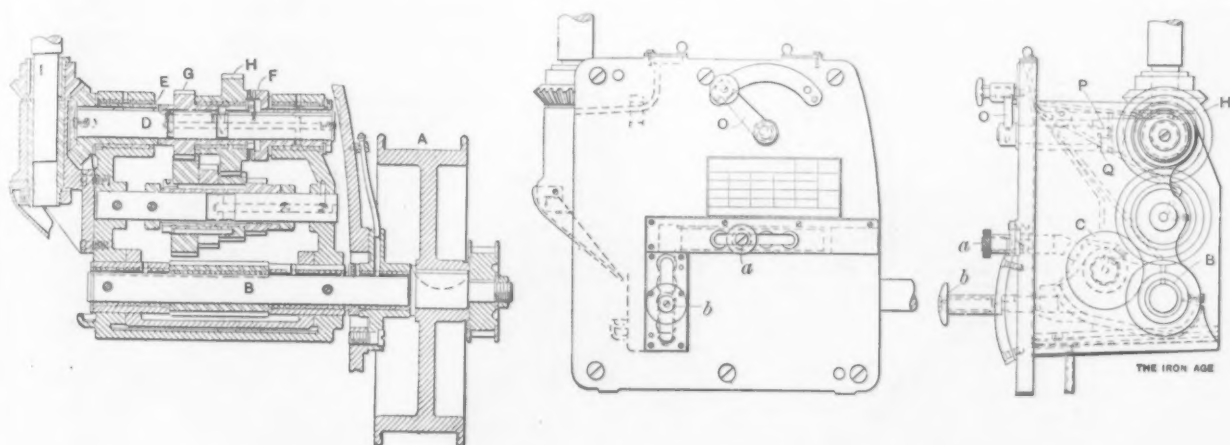


Fig. 2.—Detail of the Speed Changing Mechanism Associated with the Drive.

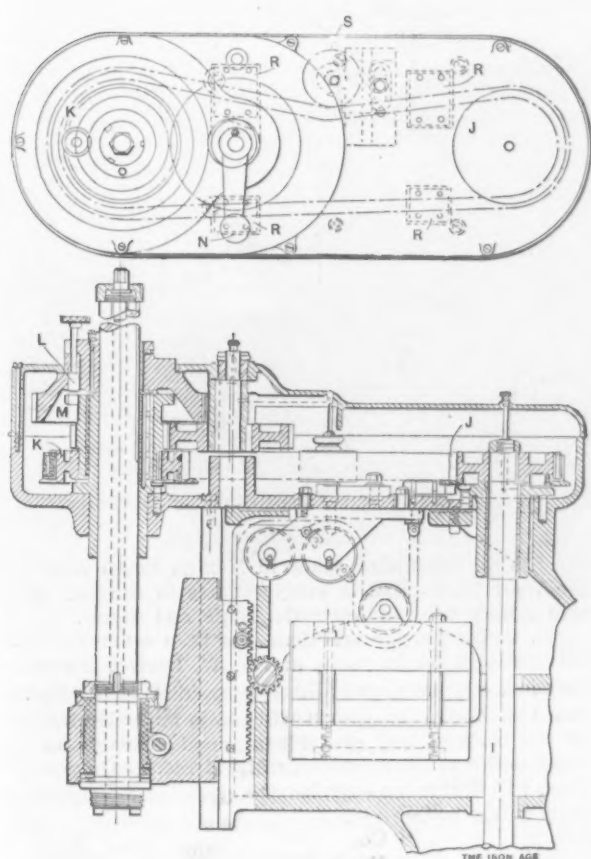


Fig. 3.—Detail of the Spindle Drive.

pin M, on top of the machine, after withdrawing the locking pin L.

The spindle head is adjustable vertically, is counter-balanced by weights inside of the column and is provided with slow hand feed and quick return. For boring and drilling power feed is provided with automatic release, the operating of which is determined by the setting of a micrometer stop. Power is taken from the sprocket T, Fig. 5, on the universal joint adjoining the feed box. This is connected by a chain carried on idlers within the hollow frame to the sprocket U on the shaft V, Fig. 4. The latter may be clutched to the worm W, meshing with the worm wheel X, which in turn may be clutched

are disengaged, and the worm is operated by the hand wheel C'. The spindle head may be clamped rigidly in position after being set, when the power feed is not in use, by means of the lever D' operating the eccentric shaft E' through the eye-bolts F'. Details of the micrometer stop are shown at G'.

The quick change feed mechanism is shown in Fig. 5. Twelve changes are provided, ranging from $1\frac{1}{2}$ to 17 inches per minute. The range is from 0.004 to 0.048 inch per revolution of the spindle for small mills and from 0.088 to 1.000 inch for large mills. The changes are obtained by adjusting the index slide and lever, the mechanism being in a general way similar to that for changing the spindle speeds. Referring to Fig. 5, the drive is from the main driving pulley shaft by chain and sprocket wheel H'. On this sprocket shaft is the long pinion I'. The feed is transmitted to the cone shaft through the intermediate J', shown in the side elevation, but not in the plan view, to any one of the six gears of the cone. For the slower series of feeds the gear K' is in mesh, as shown, and for the fast series the gear M', on the same quill with K', is moved over until it meshes with the large gear. The stop knob N' connecting the fork O' shifts the intermediate J' to a point opposite the desired one of the six cone gears and the lever P' swings the intermediate into engagement with the cone gear. The lever P' is locked in position by a spring pin entering the corresponding hole on the side of the case.

The table feed mechanism is of the standard Brown & Sharpe type and is driven from the same gear box that actuates the spindle feed, being connected, as shown in Fig. 1, by a universal jointed shaft. It is independent of the speed of the spindle. The longitudinal feed, automatic, has a range of 34 inches; the transverse feed $13\frac{1}{2}$ inches, and the vertical feed is 15 inches. The spindle head has a vertical feed of 8 inches.

A pad is provided on the back of the frame, at the base, to which a motor bracket may be bolted to receive a motor of any standard make. The power from the motor is transmitted through sprocket and silent running chain to a large sprocket, which is substituted for the driving pulley.

The Wisconsin Gas Association held its convention in Milwaukee, February 14, 15 and 16. Among the technical papers of particular interest was one by Dr. H. B. Harrop, chemist of the Milwaukee Gas Light Company, on the subject, "A Brief Outline of Gas Works Chemistry." Considerable attention was also given to the discussion of the development of the coke business as an adjunct

to the manufacture of gas. Thursday afternoon the association inspected in a body the coke ovens of the Milwaukee Coke & Gas Company. Col. E. G. Pratt of Milwaukee was re-elected president; C. H. Williams, superintendent of the Madison Gas & Electric Company, vice-president, and H. H. Hyde, Racine, secretary.

The Wisconsin State Capitol Building.

A movement has been started in the Legislature of Wisconsin which proposes to remove the capital of the State from Madison to Milwaukee. The agitation is the result of plans that are being made to erect a new capitol

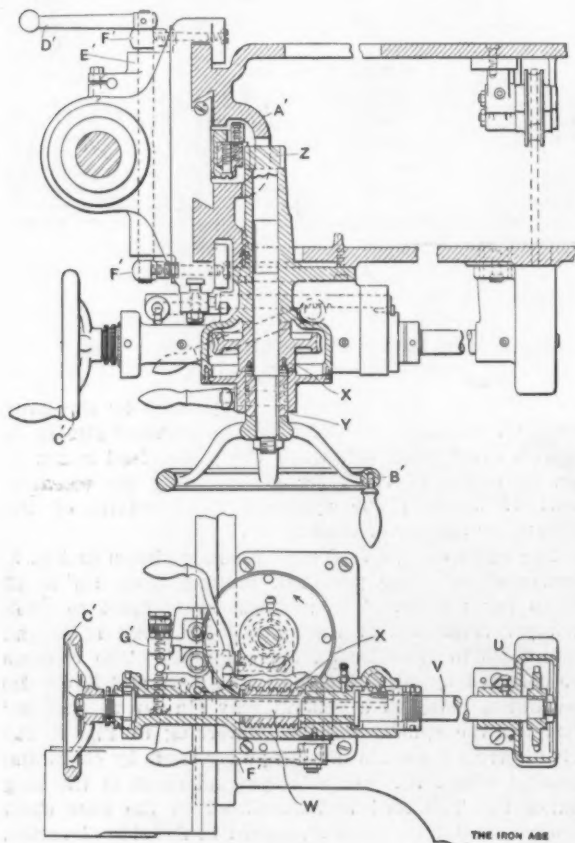


Fig. 4.—Detail of the Spindle Feed Mechanism.

building to take the place of the present structure, which was badly damaged by fire a year ago. At that time Governor La Follette appointed a commission to make recommendations and present plans for reconstructing the old building or erecting an entirely new one. The commission, of which Edwin Reynolds, consulting engineer of the Allis-Chalmers Company, is a member, called for plans from leading architects, and made its report a few weeks ago, in which it advised the erection of a new building and recommended that the plans of Cass Gilbert, a New York architect, be accepted. These plans contemplate the erection of a building to cost more than \$5,000,000. Other plans presented by Milwaukee architects provided for a building to cost in the neighborhood of \$2,000,000. The discussion of the subject gave rise to suggestions that the capital be removed to some part of the State more easily accessible and with ampler hotel accommodations. Oshkosh has also introduced a bill asking that the capital be removed to that city. The impression seems to prevail that no change will be made in the location of the capital, although there is quite general dissatisfaction with the present location.

The Bessemer Coal & Coke Company will remove its general offices from Cleveland to Pittsburgh March 1, having secured quarters in the Bessemer Building, corner Sixth street and Duquesne Way. The following is a list of officers: C. J. Brokenshire, Cleveland, president;

George H. Love, Johnstown, Pa., vice-president; E. M. Love, Somerset, Pa., secretary; J. C. Trask, Cleveland, treasurer; F. W. Wood, Cleveland, general manager. The above and the following are directors: L. F. Demmler, J. C. Lange and William Steinmeyer, Pittsburgh; E. H. Baker, Cleveland, and James R. Branch and Wilfred Johnson, New York City.

The H. B. Brown Company.

The H. B. Brown Company, East Hampton, Conn., a joint stock company incorporated under Connecticut laws with an authorized capital of \$50,000, succeeded February 10 to the bolt and nut machinery business of H. B. Brown & Co. H. B. Brown is president and A. W. Barton is secretary and treasurer. The business was established in 1865 as H. B. Brown & Co., and until the present incorporation was conducted under that style, except for two years—about 1870-1871—when the firm was known as Brown & Barnes.

The Merriam standard bolt cutter, which is made by this company, is not only well known in the United States

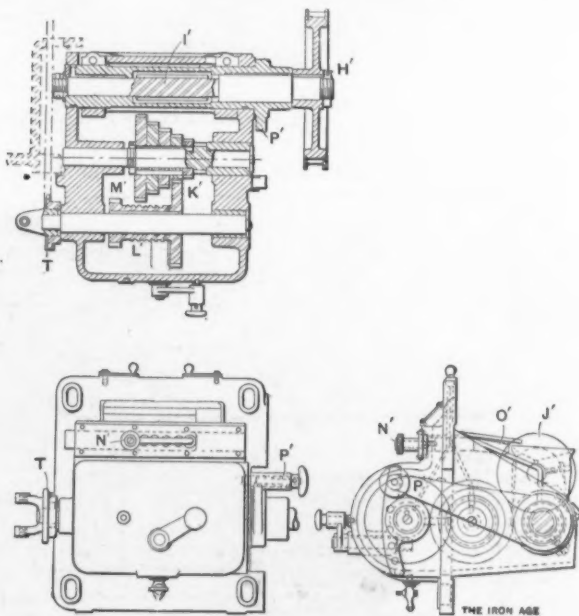


Fig. 5.—Detail of the Feed Changing Mechanism.

but has an established trade in Mexico, South America, the West Indies and in every country in Europe. It is also largely used in Australia, India and Japan.

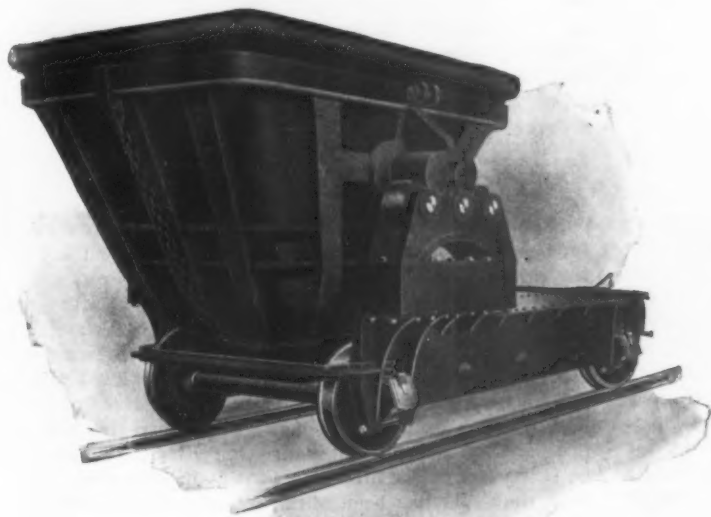
H. B. Brown, the president, has been connected with this business for 40 years, and A. W. Barton, the secretary and treasurer, was formerly president of the Barton Bell Company. Mr. Brown will retain an active interest in the business and give his personal attention to the construction of the machines, while Mr. Barton, a younger man, will devote his energies and attention more particularly to the selling end.

The British Government is arranging for national ownership of the telephone public service in Great Britain, to take effect December 31, 1911. The price to be paid to the present owner of the telephone lines, the National Telephone Company, is to be settled by arbitration, and the basis is the fair market value of the plant and works. Preliminary provisions are to be made to insure the efficiency of the service during the company's continuance in possession of the lines. The approval of Parliament is expected.

The Interstate Commerce Commission has postponed until March 22 the hearing fixed for February 15 on the question of the adoption of a uniform bill of lading for railroads throughout the official classifications territory.

Dewhurst Slag Ladles and Cars.

The Wellman-Seaver-Morgan Company, Cleveland, Ohio, has sole American rights for the manufacture and sale of the Dewhurst slag ladles and cars. These ladles embody a number of distinctive features which will be noted by reference to the accompanying illustrations.

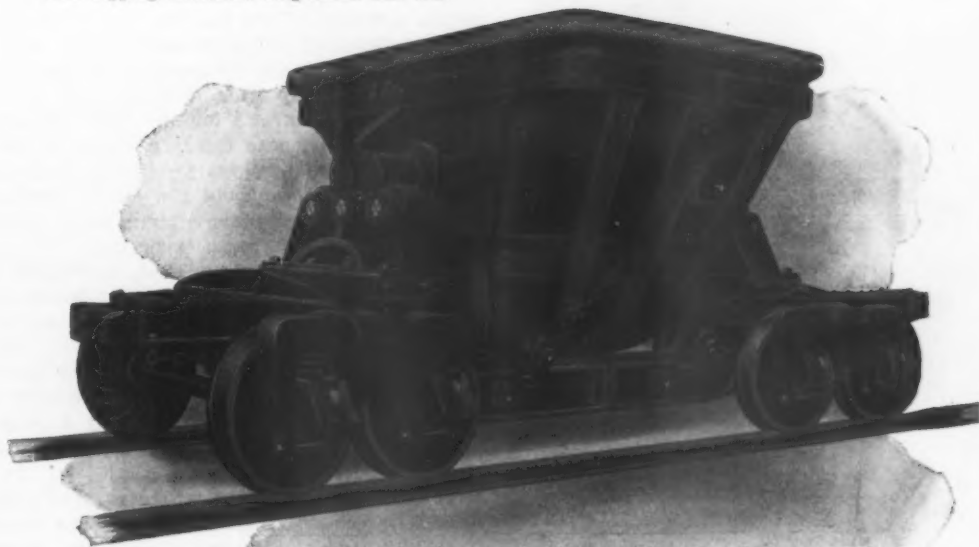


End Tipping Dewhurst Slag Ladle and Car.

toward it. When the slag has been dumped the ladle rights itself by gravity by merely backing the locomotive. A train of side tipping ladles can be tipped in series by attaching the hook of each ladle to the car ahead of it. The end tipping ladles are tipped by a direct pull of the locomotive from the opposite end of the car, the locomotive pulling away from the car.

On all ladles a forged steel band is attached, running around the ladle slightly below the rim. By means of this band the pull is evenly distributed around the ladle, thus obviating any tendency of the pull causing the ladle to spring outward at the front, which might cause it to crack transversely. By fixing the tipping point high on the ladle the leverage is increased and the tipping process is made proportionately easier.

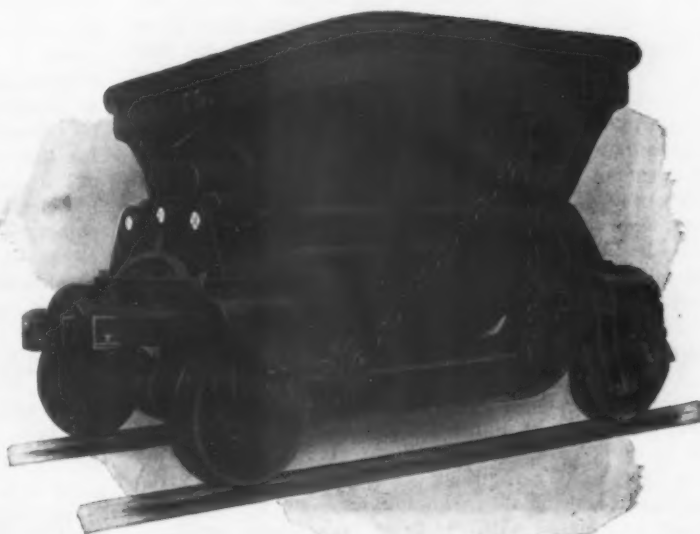
Double trunnions are cast on each side of the ladle, being located slightly above the axis, so that the ladle will right itself from any point to which it might be tipped. Roller bearings are provided, on which the trunnions rest, thus greatly reducing the power required for tipping. The ladles are of special shape, to facilitate the stripping of the slag and skull. Hence, in dumping, the skull follows the molten slag, requiring no hand work for its removal. The whole of the work is handled by the locomotive and its crew. The ladle is cast in a single



Side Tipping, Double Truck, Dewhurst Slag Ladle and Car.

Hand tipping is done away with, thus reducing the cost of operation and increasing the speed. The tipping device is at once simple and efficient. The ladles are tipped by a pull of the locomotive on the tipping chain. There are no power cylinders, gears or tipping poles required.

The chain and tipping mechanism for side tipping ladles can be placed on whichever side of the car the dumping is to be done. The chain runs over steel snatch blocks and guide pulleys, the latter and two of the snatch blocks being attached to the car and the other snatch block being attached to the ladle, as shown. The chain is provided with hooks at each end, one for hooking to the car and the other for hooking to the locomotive. This chain may be hooked to either end of the car as required. The locomotive pulls away from the ladle while dumping, hence if the chain should break the locomotive is not endangered, but will run away from the ladle instead of



Side Tipping, Single Truck, Dewhurst Slag Ladle and Car.

piece, and is heavily ribbed on the outside to stiffen it and increase its strength. There are no ladle linings to require renewal. The absence of linings also obviates all possibility of the skull pulling out the lining and taking it with it in dumping.

These cars are built for standard gauge tracks and are equipped with either four or eight wheels, as may be required. They are built in a variety of sizes ranging in capacity from 70 to 280 cubic feet in side dumping pattern and from 70 to 210 cubic feet in end dumping pattern, the 210 cubic foot car of each being the standard size.

The Comstock Graphite Lubricator.

The difficulties encountered in the use of flake graphite for bearings are only too well known among engineers. A device which has proved remarkably successful in overcoming these difficulties has just been placed on the market by the Comstock Engine Company, 49-61 Clymer street, Brooklyn, N. Y., and is herewith illustrated. This lubricator consists of a glass reservoir to contain the oil, below which is a brass graphite receptacle through which the oil passes on its way to the part to be lubricated. A section of the lubricator, or cup, is shown in Fig. 1. Referring to this illustration, *a* indicates the reservoir for containing the oil, which is provided with a needle valve, *b*, to regulate the flow of oil. This drops through

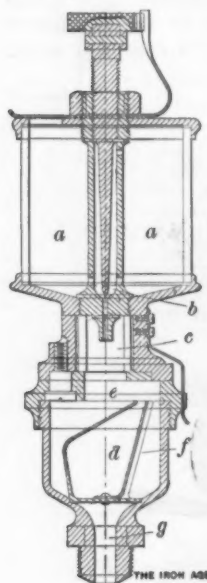


Fig. 1.



Fig. 2.

the sight feed glass *c*, so that the amount used is easily known and controlled. Below this is a receptacle, *d*, which is nearly filled with flake graphite. When the oil drops into the graphite receptacle it falls on the inclined top of a small frame, *e*, and is thus diffused over the graphite. The oil thus dropped, after picking up a small quantity of graphite, finally makes its way through a wire cloth, *f*, attached to the under side of the frame, thence emerging through the passage *g* to the parts to be lubricated. It will be understood that the graphite settles in a compact mass in the cup and the oil does not pass through this mass. The size of the valve permits a close adjustment, so that the flow may be no more than one drop per minute or may be increased as desired. Fig. 2 is a view of the lubricator, showing the oil reservoir swung aside to permit access to the receptacle for the graphite.

Tests of this lubricator which have been made on moving machinery have given excellent satisfaction. A flow of two drops per minute carried enough graphite to lubricate with complete success the bearing of a propeller shaft 8½ inches in diameter and running at a speed of 128 to 140 revolutions per minute. On a shaft making from 1600 to 2000 revolutions per minute, which had given considerable trouble by running hot, one of the lubricators was placed with the same satisfactory result.

The device is simple in construction, having no complicated moving parts to get out of order. It is easily

regulated, and when properly adjusted will use no more material, either of oil or graphite, than is needed to do the work required. It is particularly adapted to the lubrication of heavy bearings or those running at high speed. Patents have just been granted on this cup, and as showing the condition of the art of lubricating the inventor states that he has obtained both a mechanical and a process patent.

The Comstock Engine Company will adapt this lubricator for use both as a gravity cup for all bearings and to work under pressure for steam cylinder lubrication. It will be made in four sizes—namely, 1, 2, 4 and 6 ounce.

Pacific Coast Prospects Are Bright.

SAN FRANCISCO, CAL., February 11, 1905.—The weather for the past two weeks has been unfavorable for trade, as the rains on land and the storms on sea have put a partial stop to transportation and interfered greatly with business of various kinds in different parts of the State. But the outlook for crops never was better in the history of California than it is to-day, and as prices are good the purchasing capacity of the farmers and orchardists never had a better promise. In many other respects, too, the prospects of the purchaser are improving. There will be better prices for oil and a larger quantity sold. It is true that this has been obtained only at the cost of a struggle with the great monopolies, but better prices will come. In the forest sections the outlook is very good. This is also the case in the mining sections of the State, for the rains that have helped the farmers also helped the work of the miners. Therefore, though business has fallen off somewhat for the past couple of weeks and may be quiet for the month of February, it will be more than made up later on in the year.

In this city contracts for new buildings have gone on merrily. January was the largest month that we have had in a year, and February will be a large month, too. It is the same throughout the State, especially in the south. In Los Angeles the activity in all descriptions of building seems to increase every day. The outlook for the sale of hardware, iron, steel, machinery, &c., being better than ever before, all the great houses are making preparations for it. A good deal of money will be put into machinery for the mines this year, and preparations are being made to place orders for new industrial establishments. Eastern capitalists are every day visiting the State in person or by deputy to find out what openings there are for particular lines of industry.

The importations of iron and steel for the year 1904 totaled close to 35,000 tons, with a value of nearly \$1,000,000. The principal change from former years consists in cutting down the imports of tin plate. Were these as they used to be the total would come up to \$2,000,000. As to hardware, &c., there is very little outside of cutlery, and as to machinery it may be said there is none at all.

The shipments of steel, machinery, &c., for Japan fell off largely for a time. Big cargoes have been going there on the Pacific Mail liners, but they were largely made up of leather and cotton goods. It seems, however, as though the shipments of heavier products are again to be resumed, for the Manchuria took out large quantities for that destination. The last Australian steamer took out a good deal of machinery, but the shipments of bicycles have fallen off. To the Hawaiian Islands machinery shipments have been very light. Those of pipe, especially iron pipe, have been heavy. We have sent considerable machinery to Mexico on the late steamers. Indeed, machinery forms our mainstay in the oversea trade in manufactures of iron and steel.

The imports by way of Panama have been considerable of late, but those by rail have been comparatively light, although not lighter than usual at this season of the year. Very heavy consignments have been received by the steamers round Cape Horn.

J. O. L.

The Atchison, Topeka & Santa Fé Railroad Company has placed orders for 65 locomotives, 60 passenger coaches of largest size and 5300 freight cars of large capacity.

The Swindell Water Seal Gas Producer.

The accompanying illustrations show a water sealed gas producer patented by James H. Swindell and manufactured by the American Furnace & Machine Company, Publication Building, Pittsburgh, Pa. This is the largest one built by the company, being 12 feet in diameter by 12 feet high, and will gasify from 1200 to 1500 pounds of coal per hour. With this producer it is possible to use gas coal of any quality. The operation of the producer will not be affected, and the results will be uni-

tion of this company that a producer with straight walls is not a correct construction, inasmuch as it is impossible to keep the coal against a straight wall, since as the coal burns it shrinks away from the wall toward the center of the producer, leaving a space between the coal and the wall through which the blast penetrates, igniting the gas in the producer and causing a great loss in fuel. To prevent this loss the walls of the Swindell producer are made to slope at an angle of 45 degrees, starting two-thirds of the distance down from the top of the producer. A rectangular wall is provided about

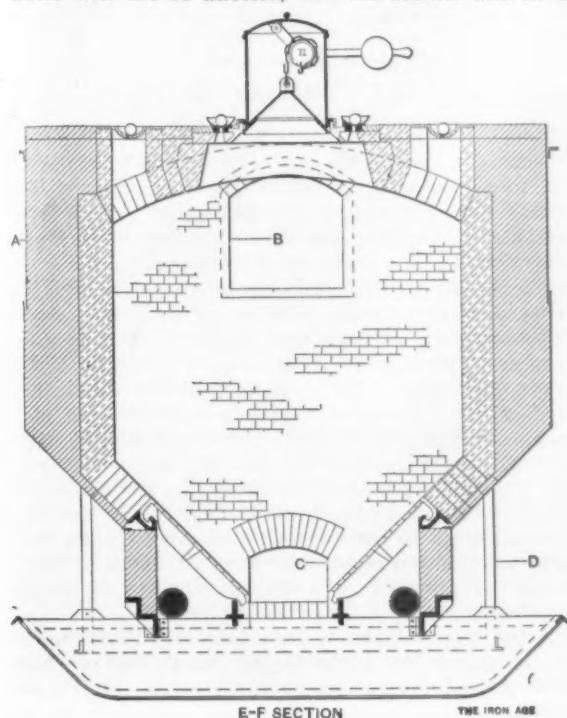


Fig. 1.—Vertical Section.

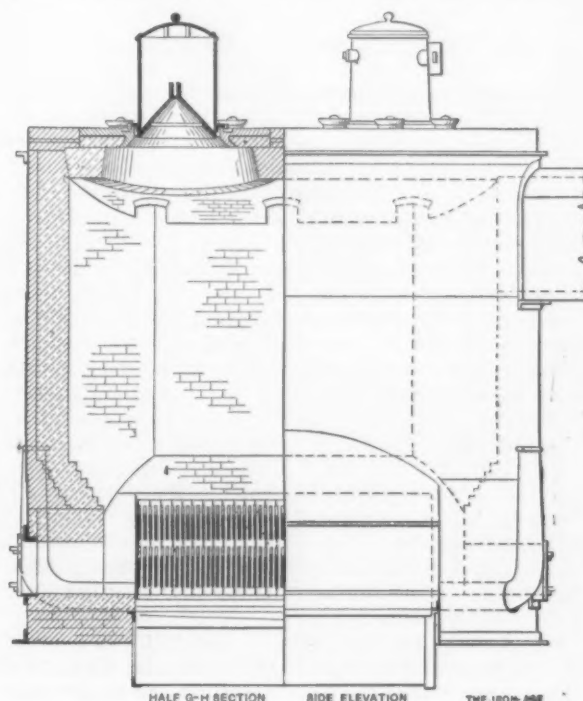


Fig. 2.—Half Vertical Section.

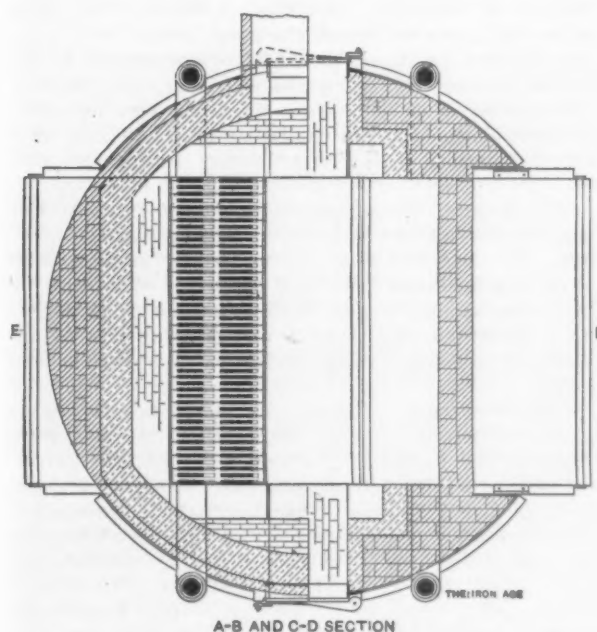


Fig. 3.—Horizontal Section.

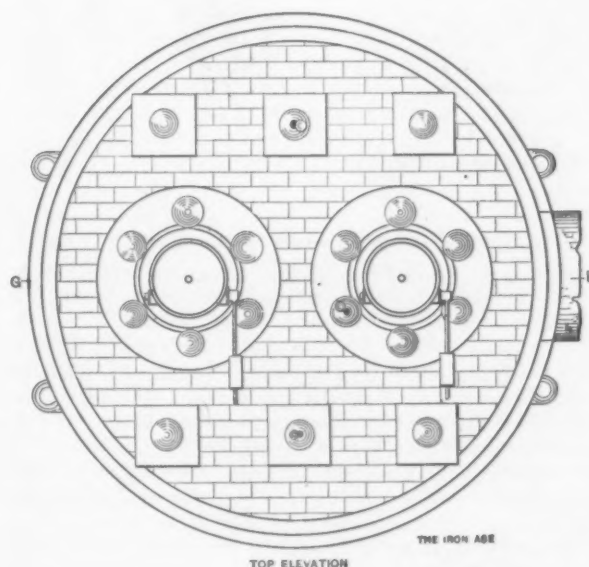


Fig. 4.—Top View.

THE SWINDELL WATER SEAL GAS PRODUCER.

formly the same, according to the amount of gas which the coal contains.

Fig. 1 shows a vertical section of the producer, where the coal is fed through a bell coal hopper, distributing the coal evenly on the fire below, so that the operator has no trouble in keeping a level fire. The coal being distributed evenly on the fire avoids the formation of holes through which the blast can be forced, igniting the gas as it escapes from the coal. It is the conten-

tion of this company that a producer with straight walls is not a correct construction, inasmuch as it is impossible to keep the coal against a straight wall, since as the coal burns it shrinks away from the wall toward the center of the producer, leaving a space between the coal and the wall through which the blast penetrates, igniting the gas in the producer and causing a great loss in fuel. To prevent this loss the walls of the Swindell producer are made to slope at an angle of 45 degrees, starting two-thirds of the distance down from the top of the producer. A rectangular wall is provided about 1 foot above the grate bars and extending the long way of the grate, as shown in Fig. 3. As the coke reduces to ashes, the sloping on the grate of the producer causes the coke to lie close against the walls, preventing the blast from getting through to ignite the gas. The sloping grate causes the clinkers to form in the center of the producer instead of at the walls, as they do in center grate producers. There are four blast pipes that enter beneath the sloping grate and blow toward the center

of the producer instead of from the center toward the wall. The water sealed ash pan extends the full width of the producer and the entire length of the grate, which does not leave an offset for the ashes to collect on to obstruct the blast. In removing the ashes those under the sloping grate are the first to be removed, and, as is well known, when producers are cleaned under the grate and the blast is not obstructed satisfactory results are obtained and the grate bars are not burned out rapidly.

Fig. 2 shows a half vertical section. The two bell coal hoppers and the poke holes in the hoppers give the operator access to any part of the producer when poking the fire. This is important in order to get the gas from the coal and force the clinkers to the water pan, where they can easily be removed either from the pan or through the cleaning doors at either end of the grate. In case they are too large they are taken out through the pan. This sometimes happens when the coal is bad and the fire is run too hot. There are only two cleaning doors, but these are sufficient to allow access to any part of the grate if a clinker should be formed.

Fig. 3 is a horizontal section through A B and C D, showing the form of the inside of the producer as viewed from above and also showing one side of the sloping grate and the cleaning doors at the end of the grate. The four blast pipes distribute the blast evenly under each grate and keep the fire in a uniform heat throughout. The blast pipes require very small jets, $\frac{1}{8}$ -inch openings being sufficient to supply enough steam to blow the fire. At the top of each blast pipe there is a regulating cap, which admits the amount of air required. The proper regulation of this air is important. At times the producer requires very little air and more steam, and at other times the reverse is true. Therefore by having a regulating cap it is easy to adjust to the desired amount of air.

Fig. 4 is the top view, showing the bell coal hoppers with six poke holes in each. There are also three poke holes on each side of the hopper. These are so arranged that the operator can reach any point of the producer easily. The top of the producer is paved with fire brick, making it cool enough for the operator to walk on.

The principal claims of the manufacturer for this producer are that it is simple in construction, easily operated and efficient in separating the gas from the coal. It has been tested with many kinds of coal and has given satisfactory results with all. The producer is also made in sizes 10 feet in diameter by 12 feet high and 11 feet in diameter by 12 feet high, the design being the same as that shown in the illustrations. The maker states that there are a great many of these small producers in operation in all branches of the iron, steel and brass trades.

Steam Turbine Plant in the Klondike.—The Westinghouse Companies have just entered an order for the equipment of a power house for the electrical operation of gold dredging boats on the Alaskan rivers. The plan involves many interesting features. A number of Detroit capitalists recently formed the Canadian Klondike Mining Company. A visit was made to the works of the Westinghouse interests at East Pittsburgh to ascertain if electrical machinery could be used in the gold mining plant. After considering various plans it was decided to install a 100-kilowatt turbo generator in the power house, to be driven by a 600-horse-power Westinghouse-Parsons steam turbine. The dredge boats are being built by the Marion Steam Shovel Company, Marion, Ohio. On these boats will be installed induction motors aggregating a total of about 500 horse-power and varying in size from $7\frac{1}{2}$ to 100 horse-power. The power house will be located at Dawson City, and the dredges will operate on the Yukon River and its tributaries. Lines for transmitting power will be strung from the station to the boats, wherever they may be working.

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to help along the movement for uniformity in the spelling of the word "Pittsburgh." Heretofore the company has always rendered the word as "Pittsburg," and the addition of the final "h" is to be made because the exponents of the ten-letter way of spelling it seem to have the better of the argument.

The East Boston Tunnel.

On last December 31 the first train carrying passengers passed through the East Boston Tunnel, thus marking the completion of a great project. The tunnel is a part of the Boston system of subways and passes under the harbor, connecting Boston and East Boston by a rapid transit line. The act authorizing the building of the tunnel was signed June 10, 1897. The first contract was made in April, 1900, and active construction was begun very soon after. The completion of the tube has therefore required almost five years, during which a good average of daily progress has been maintained. Considering its magnitude the work has been remarkably free from accidents, and has been carried on with practically no injury to adjacent property.

Starting at Maverick Square, in East Boston, the tunnel passes under Lewis street, Boston Harbor, Long Wharf, State and Court streets to Scollay Square in Boston, where connection is made with the Boston Subway. Three passenger stations are provided, located for most convenient connection with existing surface and elevated lines. The work in part of its course was pushed under some of the busiest streets of the city, yet there was little interference with traffic. The total length of the tunnel is approximately 7500 feet, of which fully two-thirds was built by the shield method, the remainder in open cut excavation. The portion actually under the water of the harbor is about 2700 feet long, the balance of the tunneled portion passing through "made ground," filled in as the growth of the city demanded.

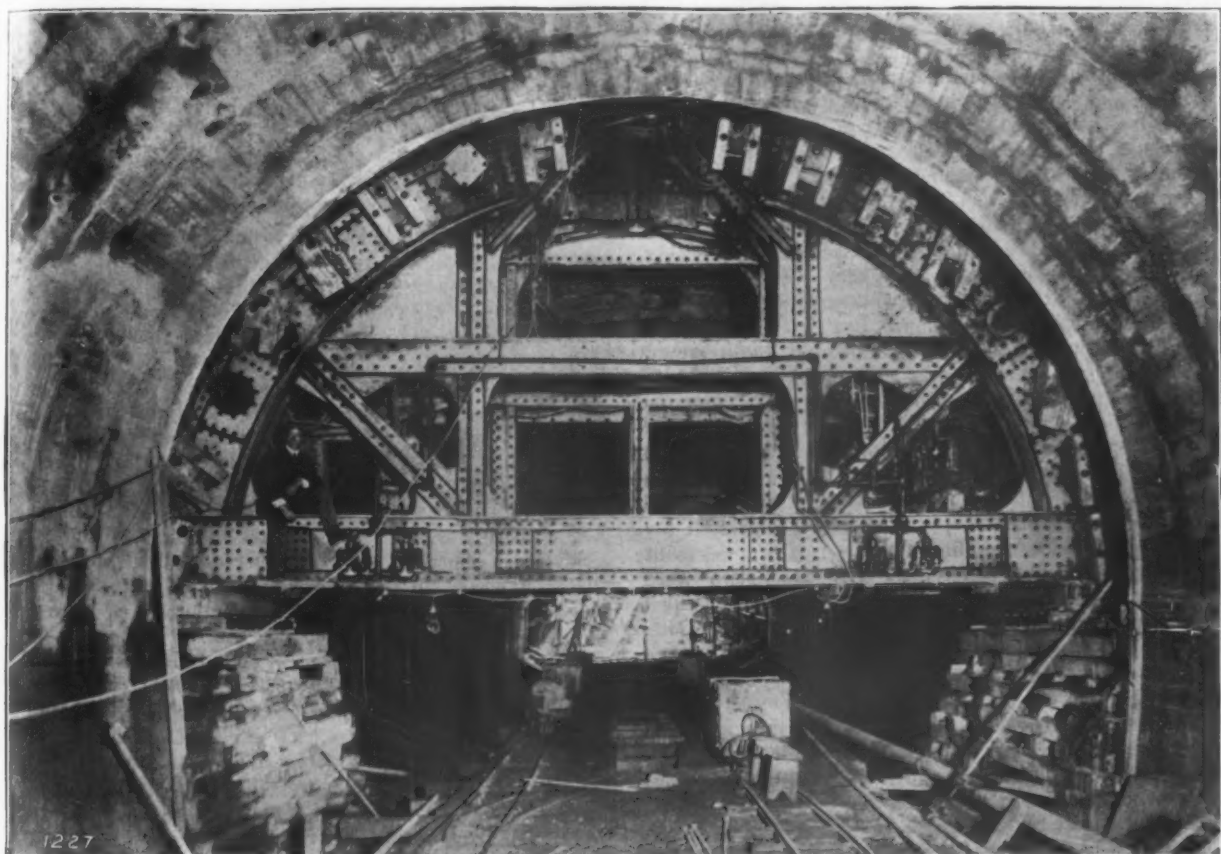
Test bores were made along the line of the tunnel, so that the materials to be penetrated were known in advance with reasonable accuracy. A depth greater than at present essential was demanded by the fact that allowance had to be made for possible dredging of the harbor to make a 40-foot channel. To meet this condition different grades were required in the tube. For the first 2100 feet from Maverick Square the tunnel descends by a 5 per cent. grade, which is much the heaviest on the line. The greatest depth attained by the tunnel invert is about 80 feet below mean low water. The least thickness of earth between tunnel and water is 18 feet. The cross section of the completed structure varies at different points, but in general is the well-known horseshoe type. The tube is lined throughout with concrete, reinforced where necessary by imbedded steel rods. Ventilation is provided by powerful fan plants forcing fresh air from either end, and electric lights illuminate the interior.

In construction the line was divided into six sections, lettered from A to F. Of these, sections B and C were driven by straight tunnel methods; the other sections were built in open cut. The methods used in open cut were in general those of common practice. There were no novel features of striking interest. The streets were simply excavated to level and the concrete tube built in position, the timber frame work being left in place for 30 days to allow the concrete to harden. The excavated material was then filled over all and normal surface conditions were restored. This construction differed from that used in the New York Subway in that concrete was used entirely instead of the steel structure adopted in New York.

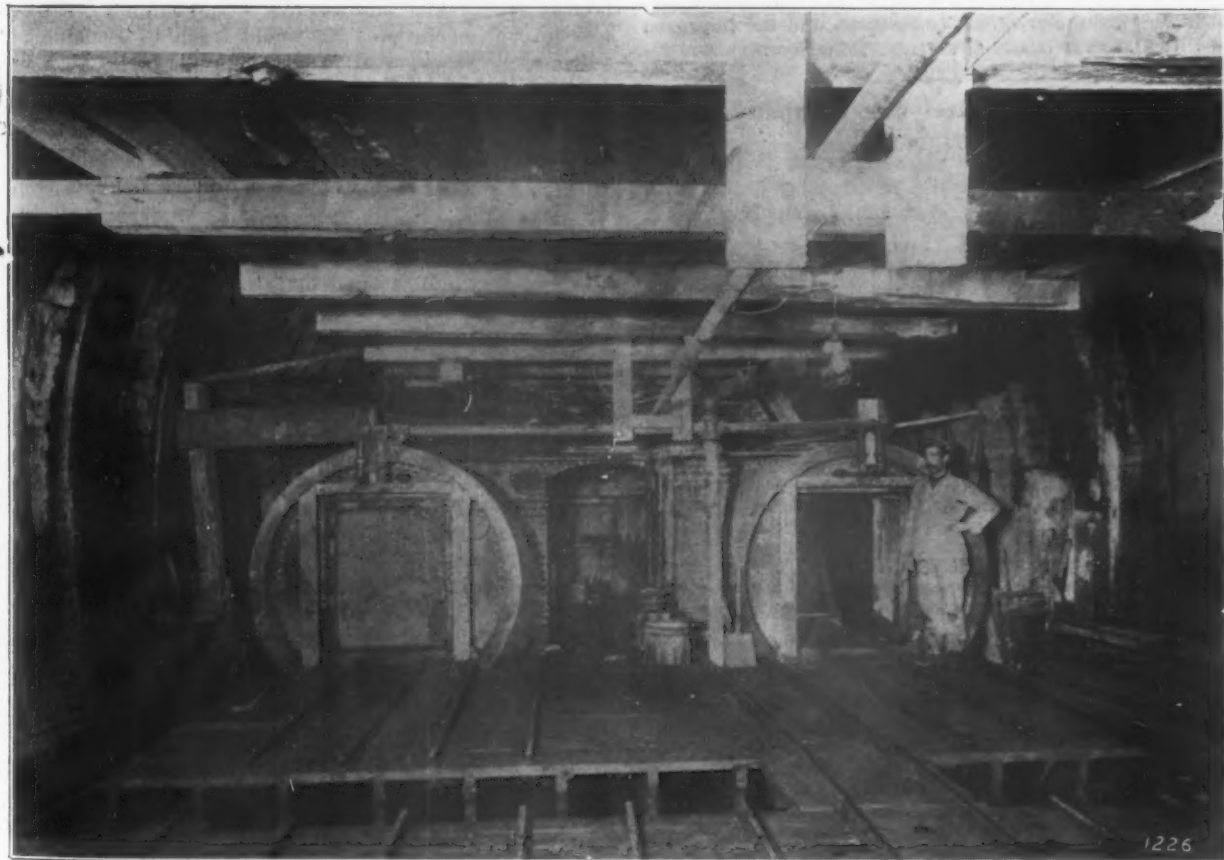
Sections B and C aggregate 5150 feet in length and so form the major part of the contract. They are most interesting as having been constructed wholly by subsurface tunneling methods. Section B, 4400 feet long, was started at a shaft in Lewis street and was driven by the pneumatic shield method, almost the entire distance being made under air pressure. The air locks were three in number, the one near the top of the tunnel being used

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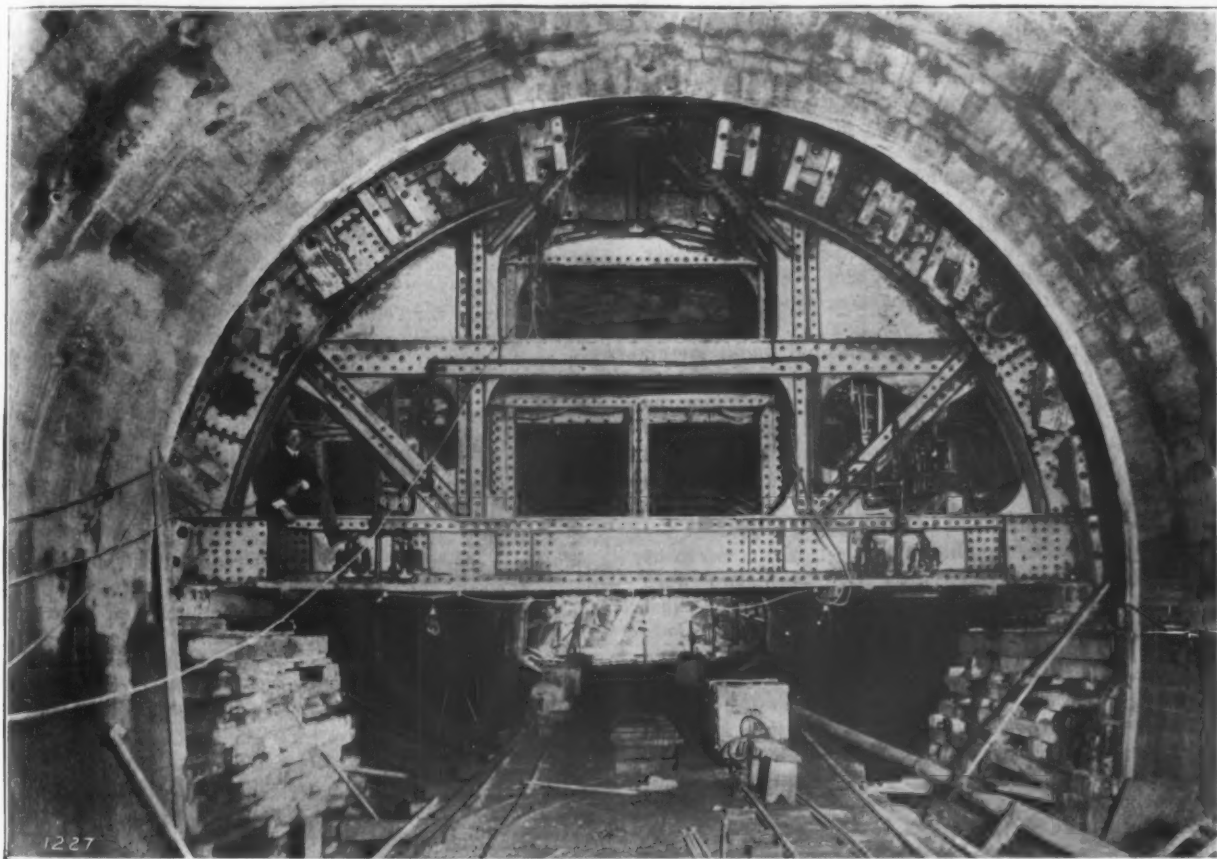
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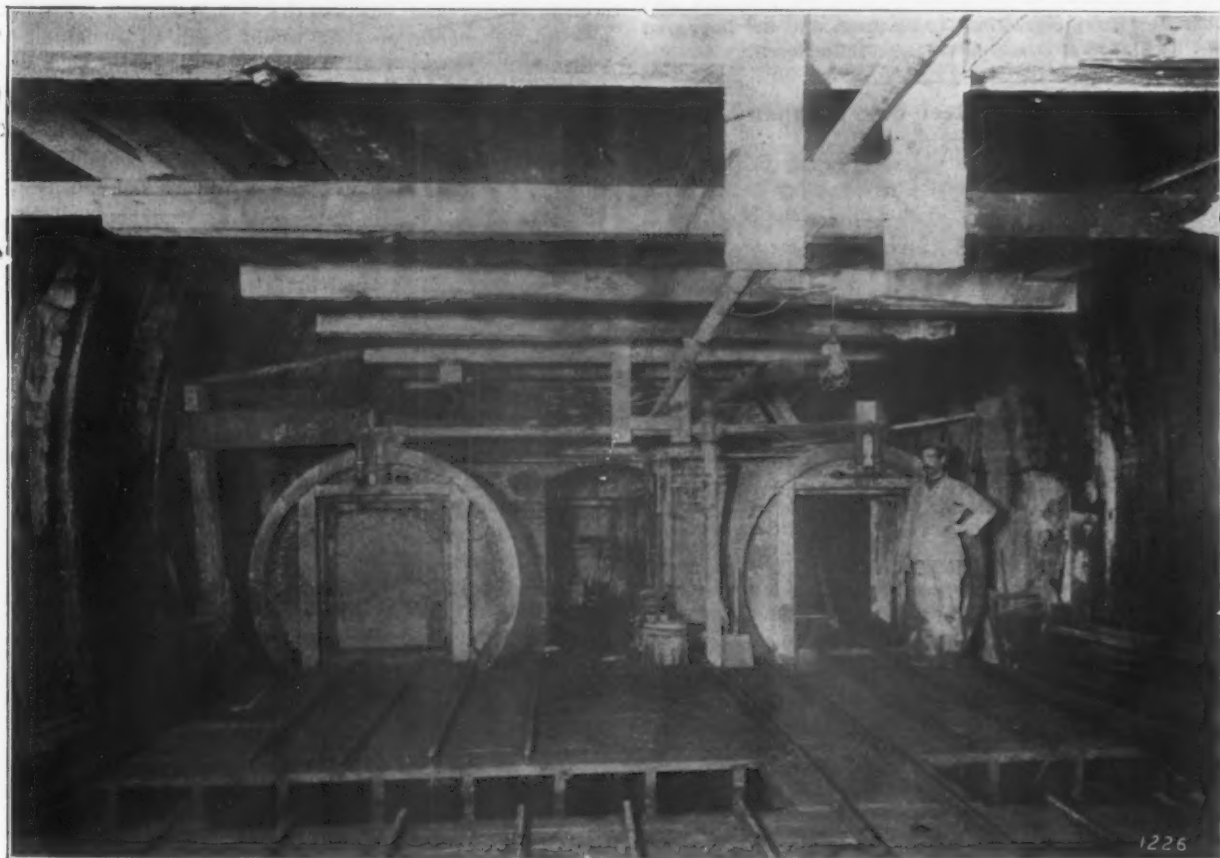
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front of it. The compressing plant for this section included three Ingersoll-Sergeant air compressors, two low pressure straight line single stage machines furnishing air for the working chamber in the shield, and one high pressure straight line two-stage machine delivering air at a pressure of about 115 pounds. This high pressure air was used in pumps operating the hydraulic jacks for moving the shield, developing a pressure of 4000 pounds per square inch, applied in the 16 jacks of 75 tons capacity each. This air was also used in driving motors running concrete mixers, winding engines and other devices, while a portion was discharged direct into the advance headings for ventilation. The combined free air capacity of these three compressors was something over 2500 cubic feet per minute, and they were driven by steam from a battery of three 100-horse-power boilers.

Section C, 750 feet in length, included that portion of the line between Atlantic avenue and India street. The method of tunneling was in general that used in section B, starting from a construction shaft near the Custom House. The shield used here was very similar to that in the other tunnel section and it was manipulated in the same manner. Three air locks gave access to the working chambers. The air pressure in front of the shield averaged about 18 pounds. The compressed air for this section was supplied by four Ingersoll-Sergeant steam driven air compressors. Of these, two were straight line high pressure machines, having a combined capacity of about 1500 cubic feet of free air per minute, delivered at 120 pounds pressure; the other two were low pressure machines of straight line type, with an aggregate free air capacity of 2300 cubic feet per minute compressed to 40 pounds. The low pressure air gave ventilation and pressure in front of the shield; the high pressure air was used to drive pumps, winding engines and other appliances.

The total cost of the tunnel has exceeded \$3,000,000. The work was completed in the contemplated time, and the methods of construction were found in every way satisfactory. The opening of this tunnel to traffic has reduced the time of transportation between Boston and East Boston by more than 10 minutes, and the improved facilities are far reaching in their influences.

The Pressed Steel Car Company.

President F. N. Hoffstot's annual report to the stockholders of the Pressed Steel Car Company begins with the statement that "the year ending December 31, 1904, was the poorest business year in the history of the company; there has been no such depression in the car building business since 1893." The detailed income account, as compared with the previous year, is as follows:

	1904.	1903.	Decrease.
Loss for year.....	\$707,111	†\$2,768,898	*\$3,476,009
Depreciation and rentals..	80,000	260,000	180,000
Balance loss.....	\$787,111	†\$2,508,898	*\$3,296,009
Charged against previous year		21,392	121,392
Charges inventory adjustment		650,000	650,000
Charges		771,392	771,392
Balance loss.....	\$787,111	†\$1,737,506	*\$2,524,617
Preferred dividends.....	\$875,000	\$875,000
Common dividends.....	375,000	625,000	\$250,000
Total dividends.....	\$1,250,000	\$1,500,000	\$250,000
Deficit	\$2,037,111	†\$237,506	*\$2,274,617
Previous surplus.....	4,568,985	4,331,479	*237,506
Net surplus.....	\$2,531,874	\$4,568,985	\$2,037,111

* Increase. † Profit. ‡ Surplus.

Following is the condensed general balance sheet for the two years:

	Assets.		
	1904.	1903.	Decrease.
Property and plants....	\$26,043,767	\$26,063,190	\$19,423
Stock owned.....	1,712,881	2,110,646	397,765
Taxes and insurance....	22,057	16,620	*5,437
Accounts receivable.....	493,251	857,670	364,419
Stock and material on hand	2,164,390	1,536,407	*627,983
Cash in banks.....	2,130,517	3,527,165	1,396,648
Totals.....	\$32,566,863	\$34,588,898	\$2,022,035

	Liabilities.		
Common stock.....	\$12,500,000	\$12,500,000
Preferred stock.....	12,500,000	12,500,000
Five per cent. mortgage gold notes.....	3,500,000	3,500,000
Purchase money mortgage.	310,000	310,000
Accounts payable.....	844,997	797,570	*\$47,427
Accrued salaries and wages	88,255	120,606	32,451
Accrued interest.....	72,988	72,988
Accrued preferred dividends	218,750	218,750
P. and L. Surplus.....	2,531,873	4,568,984	2,037,111
Totals.....	\$32,566,863	\$34,588,898	\$2,022,035

* Increase.

Extracts from the annual report explaining the business conditions of the year are given below:

The average requirements by railroads and other users of freight cars for replacement and new equipment are about 195,000 cars per annum. During the year 1903 only about 110,000 cars were ordered and most of these in the early part of the year, so that the car building companies (at least those that were on time with their deliveries) practically completed their orders before the close of the year. During the year 1904 only about 130,000 cars were ordered, and fully 70 per cent. of these orders were placed during the last three months of the year. There was, therefore, no time to complete the construction of most of the cars ordered last year; consequently they do not figure in last year's receipts. In the two years 1903 and 1904 there were nine or ten months in which few orders were given at all.

The company's sales over a period of years were: 1899, \$14,108,212; 1900, \$22,540,116; 1901, \$23,032,491; 1902, \$33,883,519; 1903, \$26,601,249; 1904, \$4,498,269; total for six years, \$124,663,856, on which business the company earned \$13,773,607, and from these earnings paid out \$5,250,000 in preferred dividends and \$2,750,000 in common dividends, besides charging off \$3,241,734 for depreciation, adjustments, &c.

"In a period such as last year greater difficulties present themselves to the management of a corporation such as this than perhaps at any other time. Our policy has been to avoid taking business that would entail a greater loss through operation than would result by remaining idle, yet it was imperative to keep ourselves in such a position that at all times we were prepared to take and handle any business offered at a profit. Our experience has been and is that when manufacturers take business at cost, as closely as it can be figured, it is usually executed at a loss, as there are certain charges and expenses on every large concern which have to be paid, business or no business, and the percentage of these charges and expenses increases as the volume of business diminishes; the tendency in figuring cost is to ignore this. Every possible reduction in expenses was made in the year 1904 which in our judgment was judicious, but we deemed it necessary to keep an effective organization together with the least possible loss.

"After such a period of depression in business as last year the reappearance of a fair demand for our product makes it important for us to guard against taking too much business based on cost figured during the period of depression, as when business improves labor and other contingencies creep up, causing the cost of output to advance. We are now happy to be able to say that we had on hand the first of January, 1905, orders for more than \$8,000,000 worth of business, which orders have been augmented since. On a considerable portion of these orders we expect to make a fair profit, notwithstanding the fact that in first starting up works which have been idle it is impossible to get as good results as when the works are in continuous operation."

Ralph L. Morgan, Worcester, Mass., is interesting Toledo capitalists in a project for the establishment of steel mills at Presque Isle. It is understood that if the project goes through the plant will start on a comparatively small scale and grow with the demands of the business. Mr. Morgan is a son of Charles H. Morgan, president of the Morgan Construction Company, Worcester, which builds rolling mills and other machinery and equipment used in steel mills.

The National Supply and Machinery Dealers' Association.

ORGANIZED AT CLEVELAND, OHIO, WEDNESDAY, FEBRUARY 15.—DETAILS OF THE MEETING.

With a display of enthusiasm that clearly demonstrated determination and fixedness of purpose, about 50 representatives of prominent supply and machinery houses met at the Hollenden Hotel, Cleveland, on Wednesday of last week to consider the question of organizing for mutual protection against common trade evils and co-operation in obtaining benefits heretofore neglected through the lack of unification of effort. After a brief rehearsal of some of the objects to be attained through organization, and references to the accomplishments in this direction which associations in similar lines are now enjoying, the representatives got down to work and in remarkably short order brought into being the National Supply and Machinery Dealers' Association.

As will be inferred from its name, the association is to be of national scope and will deal broadly with questions affecting the trade in machinery and supplies throughout the country. In this manner the purely local organizations which now exist in certain cities and districts will not be affected detrimentally, but, on the other hand, will be greatly assisted in their work, inasmuch as the new association will occupy the position of a supreme tribunal, which, having influence throughout the entire country, will be in a position to accomplish things that may be beyond the possibilities of the locals. It will also be noted that the organization covers both supplies and machinery. This circumvents any possibility of the entering of a spirit of strife between merchants handling solely either one of these closely allied branches. There was some talk at first of organizing the dealers in railroad, mill and mechanical supplies in one association, and forming another body consisting purely of the dealers in machine tools and kindred machinery. It soon became apparent, however, that this might invite the danger of dissension, as merchants eligible to either one of the associations could refrain from joining the other and play havoc in that particular trade. To perfectly harmonize both branches of the trade it was therefore decided to combine them, though in some cases members might be interested exclusively in machinery or in supplies. Twelve of the sixteen members of the Jobbers' Credit Association of Pittsburgh attended the meeting and they were very much in evidence throughout the entire proceedings. They participated in the discussions freely and showed great activity in bringing about the favorable conclusion of the meeting. They brought to the forefront the advantages gained in the way of credit information and convinced those present that their experience with this phase of the question proved to them that sufficient benefit to warrant membership could be derived from this matter alone. T. J. Fernley did excellent work in explaining points of his experience as secretary-treasurer of the National Hardware Association.

The Objects of the Association.

In view of the fact that the Southern Supply and Machinery Dealers' Association has had actual experience along the very lines for which the new association was organized, a number of the manufacturers who followed the doings of Wednesday's meeting commented upon the difference noticeable in the objects of these two organizations. The Southern Association, at its New Orleans convention in 1903, named among its aims and purposes the following:

"To assist the manufacturers in deciding who are legitimate dealers in supplies and machinery and who are entitled to prices as such, and to discourage the manufacturers from dealing direct with the consumers, but if any manufacturer finds it necessary to deal direct with the consumer in order to introduce and create a demand for his goods, he will invoice said goods through some dealer in the territory where the goods are sold."

In the case of the National Association circumspection is shown by the omission of such purposes, as in its constitution the objects of the organization are given as

"the promotion of more friendly business relations and mutual confidence and good will with each other, with manufacturers, and our customers."

The Officers and Executive Committee.

The work of organization resulted in the selection of the following officers:

President, E. E. Strong of Strong, Carlisle & Hammond, Cleveland.

First Vice-President, W. A. Somers of the Somers, Fittler & Todd Company, Pittsburgh.

Second Vice-President, Alfred Marshall of the Marshall & Huschart Machinery Company, Chicago.

The following Executive Committee was selected:

A. F. Brion of the Peter A. Frasse Company, New York, and George Puchta of the Queen City Supply Company, Cincinnati, two years; C. C. Strelinger of C. A. Strelinger & Co., Detroit, and George T. McIntosh of the McIntosh Hardware Corporation, Cleveland, one year.

The matter of selecting a permanent secretary-treasurer has been left open pending a canvass of the entire membership of the association. Because of the importance of this position the Executive Committee decided to go slowly in this matter and give every member a chance to voice his opinion.

Those in Attendance.

At ten o'clock on Wednesday morning, when the meeting opened, the roll call showed the following houses represented, the representative's name being given after the name of his firm or company:

Brown & Zortman Machinery Company, Pittsburgh, F. H. Brown and M. S. Zortman.
 Baird Machine Company, Pittsburgh, Hugh A. Reed.
 Hukill-Hunter Company, Pittsburgh, F. R. F. Hunter.
 Machinists' Supply Company, Pittsburgh, J. C. Simms.
 Somers, Fittler & Todd Company, Pittsburgh, W. A. Somers.
 Pittsburgh Supply Company, Pittsburgh, O. F. Felix.
 Pittsburgh Gage & Supply Company, Pittsburgh, W. L. Rodgers and G. D. McIlvain.
 Frick & Lindsay Company, Pittsburgh, John A. Clark.
 C. A. Turner, Pittsburgh, John L. Sullivan.
 Joseph Woodwell Company, Pittsburgh, H. J. Menges.
 Bostwick-Brown Company, Toledo, H. L. Thompson.
 Patterson, Gottfried & Hunter, New York, S. S. Bradley.
 Peter A. Frasse Company, New York, A. F. Brion.
 Prentiss Tool & Supply Company, New York, Robert Crane.
 Philip Gross Hardware Company, Milwaukee, Chas. A. Miller.
 O. L. Packard Machine Company, Milwaukee, F. H. Kappen.
 C. H. Bealey & Co., Chicago, E. P. Welles.
 McDowell, Stocker & Co., Chicago, W. J. McDowell.
 Marshall & Huschart Machinery Company, Chicago, Alfred Marshall.
 Patterson Tool & Supply Company, Dayton, W. D. Patterson.
 Queen City Supply Company, Cincinnati, George Puchta.
 Pickering Hardware Company, Cincinnati, Charles Moeser.
 E. A. Kinsey & Co., Cincinnati, W. H. Gahr.
 W. T. Johnston & Co., Cincinnati, W. T. Johnston.
 C. A. Strelinger & Co., Detroit, Chas. A. Strelinger.
 Crane Company, Chicago, C. D. Little.
 Hoernell Hardware Company, Racine, Wis., J. J. Hoernell.
 Bostwick, Braun & Co., Toledo, Ohio.
 Powell, Clodd & Co., Philadelphia, Pa.
 Syracuse Supply Company, Syracuse, F. E. Scott.
 Vonnegut Hardware Company, Indianapolis, Franklin Vonnegut.
 Weed & Co., Buffalo, Mr. Kline.
 Beals & Co., Buffalo, Eugene J. McCarthy.
 Buffalo Wholesale Hardware Company, Buffalo, A. W. Weaver.
 McIntosh Hardware Corporation, Cleveland, Geo. T. McIntosh and W. B. Yost.
 Strong, Carlisle & Hammond, Cleveland, E. E. Strong.
 W. Bingham Company, Cleveland, J. W. Fenner and Henry Taylor.
 Cleveland Tool & Supply Company, Cleveland, J. C. Witley and C. C. Coventry.
 White Tool & Supply Company, Cleveland, W. M. Mills.
 Geo. Worthington Company, Cleveland, H. H. Rudd.
 W. M. Pattison Supply Company, Cleveland, W. M. Pattison.
 Motch & Merryweather Machinery Company, Cleveland, G. E. Merryweather and E. R. Motch.
 The National Hardware Association, T. J. Fernley.
 The Southern Hardware Association, C. B. Carter.

The Meeting.

The meeting was called to order by George T. McIntosh of Cleveland, who said:

In calling this meeting to order it is not my intention to make any extended remarks, as I do not want to consume your time, which should be devoted to more important matters that will be brought before you to-day and to-morrow. I do, however, on behalf of the Cleveland supply dealers wish to thank you for your generous response to our call for this meeting, which I assure you we feel is very complimentary.

Some of us in Cleveland have for the past 10 years been members of the National Hardware Jobbers' Association, which, by the way, was organized in Cleveland. The success of this association has been beyond the expectations of its founders. When organized it was looked upon with suspicion and fear by both manufacturers and retail hardware dealers, but has been managed on such broad principles that these same manufacturers and retail dealers now recognize it as their best friend. At the organization of the National Hardware Association wise heads pledged it not to at any time make any agreements on prices, and this pledge has never been violated, thus avoiding all friction.

We are favored to-day at this meeting with the presence of T. James Fernley, secretary-treasurer of the National Hardware Association, who has held that office since the association started, and who, with the very able assistance of its unpaid officers, is entitled to the credit of its present standing. Mr. Fernley came here from Philadelphia to-day at the request of his Cleveland friends and for the sole purpose of aiding you in this present movement, and you will hear from him later. To conclude, I will simply say success is a good thing to follow, and if you will organize and follow in the footprints of the National Hardware Association you will have an association that you will be proud of and that will correct many evils and be of benefit to all the manufacturers as well as yourselves. I will now call for nominations for a temporary chairman of this meeting.

W. A. Somers of Pittsburgh was chosen temporary chairman and W. M. Pattison was selected to serve the meeting as temporary secretary. The following Committee on Credentials was elected: W. B. Yost, Cleveland, chairman; W. L. Rodgers, Pittsburgh, and E. P. Welles, Chicago.

Address of T. J. Fernley.

T. J. Fernley, secretary-treasurer of the National Hardware Association, addressed the convention. His remarks were in part as follows:

I assure you it gives me great pleasure to come here as a representative of the National Hardware Association and offer to do anything I can to aid in floating an enterprise which is quite similar to the association, at least in its possibilities, which I represent. Our association, as has been said in the preliminary remarks of Mr. McIntosh, was organized in this city a little more than 10 years ago, and for your encouragement I would say by a similar number of gentlemen present—to be exact, about 50. I found on seeking membership that there was a misconception as to what we proposed to accomplish. Many had an idea that it was a matter of price agreements; that we proposed to make a contract each with the other from Maine to California and from Canada to the Gulf controlling the prices of various commodities. Such a thing was never contemplated by those who took the initiative in the formation of the association. But we found that some houses that did not connect themselves with the organization made a point through their traveling salesmen of asserting that we were going to control prices.

THE QUESTION OF AGREEING UPON PRICES

has never been considered on the floor of our convention and probably never will be. We go to the manufacturer and ask him to establish a scale of prices below which he will not permit goods to be sold and to correct any violation by inflicting punishment. There are lines which are known as stable, constantly increasing in number, where unrestricted competition is made which prevents adequate profit, and on these lines we ask an established standard. Some houses are satisfied with a profit of 5 per cent. and some will not do business for less than 15 per cent. If the house that is satisfied with 5 per cent. is going to regulate prices you can see that the standard will go down. In railroad supplies I assume you must be suffering from unrestricted competition with each other or you would not come from distant parts to consider the formation of this organization.

To follow out the criticism which was passed on our association in its early days, I would say that since our organization was formed our customers and retail hardware merchants have organized in 18 or 20 States very formidable associations. Probably the customers to whom you sell will never organize, but I don't think you would have anything to fear if they did. The probabilities are that you will not attempt anything that is not

within reason. The one point you should hold prominent in your organization is the fellowship that you will have one with the other and the good feeling that will permeate the organization, the removal through acquaintanceship and friendship of acrimonious competition where you are looking with more or less distrust upon one another, caused by untrue reports brought to you through your traveling salesmen. Personal acquaintance eliminates all of this feeling of mistrust.

Then you are undoubtedly suffering from the

COMPETITION OF MANUFACTURERS.

You have done all you can; you have written letters and received very nice replies. But you have not been in the office of the man who dictated the letter and signed it, with a smile, saying, "Well, I have got that man satisfied." Two Connecticut gentlemen came to see me a little while ago in answer to a letter I had sent them requesting that they come out on the platform that had been adopted by the joint committee of the wholesalers and retailers handling the catalogue house question. The first thing they wanted to know was who had entered the complaint. I said it made no difference, but "Are you guilty?" They said: "We don't know what prices the catalogue houses are quoting on our goods." I showed them the catalogues and showed them that the goods which they were selling at 70 off were being quoted at 60, 5 and 10 from their list by these catalogue houses to the consumers. They left me with the promise to go to Chicago and bring their influence to bear upon the catalogue houses to have those prices changed, and if they didn't succeed they said they would withdraw their prices from them and do no more business with them. The larger houses not connected with our association had been supplying these mail order houses, and where our association has induced the manufacturer to discontinue selling these jobbers kept on supplying the goods. About eight months ago these houses were forced from their position, and they said they would no longer supply the mail order houses. Over 600 manufacturers in hardware and kindred lines have offered their signatures and said that they would withdraw all prices, and did withdraw the prices, from the mail order houses on the promise of the supply men of the country to correct some of these abuses and induce the manufacturers to insist upon the elevation of the prices of articles which you handle. To give you a little idea of

HOW WE WORK IN CONNECTION WITH THE MANUFACTURERS:

When a protest comes into our office which we believe is well founded we open up correspondence with our membership stating that such and such a manufacturer is selling the merchant trade, or the catalogue houses, as the case may be, at prices which are unremunerative to the jobbing trade. Sometimes we state the prices that are being quoted. We request in that letter that if the member addressed does business with the manufacturer involved he immediately send a letter of protest to the manufacturer. If the manufacturer is located in this section of the country the next day he hears from Cleveland, Pittsburgh, Cincinnati, Toledo and Detroit. The day following he hears from Boston and points in the South and as far west as the Mississippi River. The day following he hears from the Northwest and from points along the Missouri River, and in four or five days he will get letters from California, and his mail has become very heavy. It is not one letter or one jobber or one supply man that protests; it would be in our case 100 houses that send letters of protest. A few years ago one of the manufacturers said to me, "To the devil with the jobbers! What are you going to do about it?" I said: "I will consider it over night and let you know." I sent our membership letters and told them our attitude. In five days he came 800 miles and took it all back.

A few weeks ago I was asked by long distance telephone to go to New York and meet two gentlemen of an Eastern manufacturing concern, who apologized over the wire for not coming to Philadelphia. They said: "We are going to do something; stop your people writing letters." As a result they have discontinued selling these catalogue houses, whose business was upward of \$200,000. That could not be accomplished by any one person in any one city. But we are only tickling the ground. The abuses are still deep-rooted, and we hope some time to get to the bottom.

Suggestions of C. P. Carter.

C. P. Carter, secretary of the Southern Hardware Association and secretary-treasurer of the Southern Supply and Machinery Dealers' Association, addressed the meeting, telling of the advantages to be obtained by organization, and concluded by outlining the following suggestions which might be considered in the forming of the association:

Minimum Selling Price.—On such lines as may seem desirable we can convince the manufacturers that it is to the mutual interests of both dealer and manufacturer that a satisfactory and equitable plan as to minimum selling prices be adopted by the manufacturer under such restrictions as may appear just to all interested.

Catalogue House Competition.—This great octopus is sucking the very life blood from the dealers, and some uniform plan of action should be adopted, not only to guard your interests from further inroads, but to correct the abuses and demoralization which now exist. This can only be done through the manufacturers by the co-operation through an association of the dealers interested.

Credit Exchange.—A credit exchange may be possible and entirely feasible, and very profitable, after our association has been organized.

Collection Methods.—Collection methods may also be found practicable.

Mutual Fire Insurance.—Mutual fire insurance is another phase of association work which has proved very satisfactory and profitable with other associations. This might be an attractive proposition for us to consider.

Scope of the Organization.

Mr. Yost, chairman of the Committee on Credentials, reported as follows: "We find that there is a certain feeling that this organization if formed should be a combination of the supply and machinery dealers. The original call was made for the supply dealers only, which naturally embraces a great many machinery dealers who are also supply dealers. Your committee fails to make any definite report, leaving that matter open for discussion and decision." It was unanimously resolved to combine the two lines and form an organization embracing both supply and machinery dealers.

At the suggestion of the chairman a Committee on Organization, composed as follows, was appointed to draw up a constitution: W. B. Yost, chairman; George Puchta, W. J. McDowell, J. A. Clark, S. S. Bradley, F. H. Brown. Mr. Fernley and Mr. Carter were requested by the committee to join in their discussions and deliberations.

The subject of scope of the organization was then considered and the result of the discussion was a decision to make it a national one, leaving it to the local associations to say whether they will join in a body or not. It was argued that the members of the locals will find it to their best interests and advantage to join the National Association and continue the operation of the smaller organizations as well. This matter was left for future developments to work out.

The Constitution.

The Committee on Organization reported a draft of a constitution, which was adopted. It contains the usual provisions for the election of officers and the regulation of their duties, the essential features being contained in the following extracts:

The name of this organization shall be National Supply and Machinery Dealers' Association.

The object of this organization shall be the promotion of more friendly business relations and mutual confidence and good will with each other, with manufacturers and our customers.

Any firm or corporation engaged in the supply or machinery business and carrying a stock of such articles on hand as in the opinion of the Executive Committee would constitute him a legitimate dealer in these lines may, upon the recommendation of the Membership Committee, become a member of this association upon subscribing to the constitution and the payment of a membership fee of \$25 and annual dues on demand, which for all members shall be \$75.

The secretary-treasurer shall be appointed by the Executive Committee, and need not of necessity be a member of the association, and shall hold office at the pleasure of the Executive Committee.

The Executive Committee shall meet at least twice each year, or upon call of the president, at such place as the majority of the committee may elect, the expense attendant upon such meeting, except the annual meeting, to be borne by the association. It shall be its duty to perform such duties from time to time as may be necessary for carrying out the spirit and intent for which the association was organized. It shall have charge of the disbursement of all funds of the association, elect the secretary-treasurer and fix his salary and bond, and have power to engage such other employees as may be necessary to carry on the work of the association. The reports of all committees shall be referred to it before the same shall be presented to the association.

The annual meeting of the association shall be held on the second Wednesday in February and at such place as shall be named by resolution at the last previous meeting, but the same may be changed by the president in the event of an emergency warranting such change, same to be subject to the approval of a majority of the Executive Committee. Notice of such change

shall be sent to each member at least 30 days previous to the meeting. Special meetings may be called by the president upon written request of not less than ten members. Notice of same shall be sent to each member at least 15 days previous to the meeting. A majority of the members attending shall constitute a quorum for the transaction of business.

The following standing committees, of three members each, shall be appointed by the president, to serve for one year or until their successors are appointed, subject to the approval of a majority of the Executive Committee: Membership Committee, Transportation Committee, Entertainment Committee, Grievance Committee, Press Committee, Supply Committee, Machinery Committee; and the Executive Committee is authorized to pay the necessary expenses of such committees.

At all the annual meetings representatives of the press or others may be admitted to the opening session, when reports of the year's work are read, at the discretion of the Executive Committee and Press Committee. All subsequent sessions shall be executive in their character, and none but members or applicants for membership shall be admitted, unless by consent of four-fifths of the members present, the vote to be taken in executive session.

The Banquet.

On Wednesday evening a delightful banquet was tendered the association and its visiting guests by the Cleveland manufacturers and supply dealers. It was held in the assembly room of the Hollenden, which was exquisitely decorated for the occasion. Each of the numerous tables contained a huge basket of deep red carnations and the lighting effects were beautiful, soft electric rays diffused through numerous silken red lamp shades illuminating the tables. The menu was excellent. Prof. M. M. Curtiss opened the banquet with an invocation. Albert Reese Davis acted as toastmaster and filled the position admirably.

T. James Fernley delivered an address on "Trade Associations," which was well received. W. H. Boyd of Cleveland gave an oration on "Commerce," and George D. McElvalne of Pittsburgh delighted his hearer with a talk on "Good Fellowship in Business," which sparked with happy reminiscences which showed that his business colleagues in Pittsburgh as well as himself are past masters in the art of good fellowship and know how to apply it successfully to business. John K. Allen of Chicago spoke on the "Relations of the Press to the Trade," and brought home a number of good points proving that these not only existed, but were of the greatest importance to the trade. Hugh A. Reed of Pittsburgh added to the evening's pleasure by a few humorous remarks on all of the principal points touched by the other speakers of the evening, thereby indicating his wide knowledge of all subjects pertaining in any way to the trade and proving conclusively that so long as the "Smoky City" is represented in the association it will never fall into "innocuous desuetude." President E. E. Strong then followed with a number of pointed remarks concerning the association's auspicious beginning and was heartily applauded. The hosts were toasted and thanked for the evening's enjoyment, and the love feast was brought to a close. The manufacturers and dealers of Cleveland who were responsible for the banquet were: V. D. Anderson Company, Atlas Bolt & Screw Company, Avery Stamping Company, Bourne & Knowles Mfg. Company, Chisholm Steam Shovel Works, Cleveland Hardware Company, Cleveland City Forge & Iron Company, Cleveland Twist Drill Company, Cleveland Cap Screw Company, Hill Clutch Company, Hart Mfg. Company, H. W. Johns-Manville Company, Lake Erie Iron Company, Lamson & Sessions Company, Loew Supply & Mfg. Company, Mechanical Rubber Company, National-Acme Mfg. Company, National Screw & Tack Company, Osborn Mfg. Company, Oster Mfg. Company, Peck, Stow & Wilcox Company, Reliance Gauge Column Company, John A. Roebling's Sons Company, Standard Tool Company, W. S. Tyler Company, Union Steel Screw Company, Upson Nut Company, W. Bingham Company, Cleveland Tool & Supply Company, McIntosh Hardware Corporation, W. M. Pattison Supply Company, Strong, Carlisle & Hammond, White Tool & Supply Company and George Worthington company.

"Composition Roofing" is the title of a report just issued by the Insurance Engineering Experiment Station, 31 Milk street, Boston, in the charge of Charles L. N. Norton. It describes a series of tests made of Carey's Magnesia flexible cement roofing.

THE IRON AGE

1855-1905.

New York, Thursday, February 23, 1905.

DAVID WILLIAMS COMPANY,	- - - - -	PUBLISHERS.
CHARLES KIRCHHOFF,	- - - - -	EDITOR.
GEO. W. COPE,	- - - - -	ASSOCIATE EDITOR.
RICHARD R. WILLIAMS,	- - - - -	HARDWARE EDITOR.

The Proposed Southern Iron Merger.

Rumors credit the sharp rise in the shares of Southern iron companies to another consolidation project. The companies whose names are connected with the scheme are the Tennessee Coal, Iron & Railroad Company, the Sloss-Sheffield Steel & Iron Company, the Republic Iron & Steel Company and the Alabama Consolidated Coal & Iron Company. The Republic is not strictly a Southern company, but it has large interests in the South through its ownership of the Pioneer property, which makes it a factor of considerable importance in the Birmingham district. When the possibility of a consolidation was hinted some two or three weeks since as the cause of activity in the stocks mentioned it was received with incredulity because of the natural supposition that the scheme in mind was the one which had been dropped last year after a committee had investigated the Tennessee, Sloss-Sheffield and Republic properties and failed to agree on a valuation. That plan was believed to have been buried beyond hope of resurrection. If it was not possible to agree on an equitable basis of valuation at a time when pig iron producing interests were suffering from serious depression the chances of such an agreement at this time, with prices 50 per cent. higher and consumers taking iron as fast as the furnaces can turn it out, were regarded as altogether hopeless.

It now appears that those who were so skeptical were not informed as to late developments. According to statements in circulation the old plan has not been revived, but a completely new scheme of consolidation is in process of being worked out, which began with the purchase of a controlling interest in the Alabama Consolidated Coal & Iron Company. The assertion is made that the interests advocating the former plan have had nothing to do with the present one except to pass upon offers made to them. The developments have occurred quickly for a scheme of such proportions, which would seem to require financial arrangements of magnitude, especially if the control of properties is being partly secured through the purchase of stock in the open market. The great rise in the prices of the stocks of the companies involved would certainly seem to be due to other causes than the prospect of dividends. Tennessee common stock has paid no dividend for several years, yet is now selling in the 80's. Sloss-Sheffield common has never paid a dividend, and Republic preferred has paid no dividend for two years, but these two stocks have recently sold above 75. Last year they all sold down in the 30's. All three of these companies are now doing a profitable business, it is true, and their stocks are worth much more than a year ago, but the mere possibility of dividend declarations would not justify such a level of values as the present, which must be due to other considerations.

Should a consolidation of these properties be accomplished it would mean much to the iron trade. The four companies named own 30 completed blast furnaces and a new one nearly finished in Alabama and Tennessee, mak-

ing foundry and basic pig iron, having an annual capacity of close to 2,000,000 gross tons. They also own steel plants and rolling mills at Ensley and Birmingham with an annual capacity of about 300,000 tons of open hearth steel and 150,000 tons of bar iron. The Ensley mill will make this year about 100,000 tons of steel rails. Their coal and iron ore deposits are unitedly of enormous extent, ample to supply for perhaps a century their present blast furnaces and such additions as they may choose to make, besides enabling a great output of coal for the open market. Should the consolidation be effected with ample capital for the erection of plants to convert pig iron more largely into finished product, the cheapness of the raw material and the facility with which markets at home and abroad can now be reached from that part of the South would enable the dream to be realized of the great part which the natural advantages of the Birmingham district destined it to play in the iron trade of the world. Such an aggregation of interests would go far toward dominating the foundry pig iron trade of the Atlantic Coast and the Mississippi Valley. Undoubtedly it would be able under competent management to reduce costs of production below the lowest figures now attained by any one of the separate interests.

While the project is as yet merely in its preliminary stages and may fall of accomplishment, as did last year's plan, the fact that it is being attempted shows that the era of consolidations has not completely passed. The development of a strong public sentiment against great corporations, and particularly against large industrial consolidations, is powerless to deter fresh operations if capital and business enterprise should observe opportunities of a favorable character for such exploitation. That an opportunity of this character is presented in the case of these Birmingham interests seems clearly established.

Water Power Chicanery.

The promoter of wildcat schemes is always on the lookout for some new form in which to guise his allurements. His latest is the fake water power development company, which takes out of insufficient or unreliable water privileges great units of power to furnish large areas with power for lighting, electric traction and manufacturing, to the great mutual advantage, on paper, of the consumers and the people who furnish the necessary capital. According to reports from various sections, this scheme has proved a most profitable one for the promoter. He can talk of the head of water, or the millions of gallons per hour, and shuffle the two with other statistical chicanery and the technicalities of hydraulic engineering until the thing seems only a question of putting in some turbine water wheels and generators and the necessary miles of wire, which, once accomplished, will soon bring great returns on the investment.

There are so many genuine instances of the profitable development of water power that the investor who would get abnormal returns for his money has only to look about him to find plenty of modern cases where money has been made. The harnessing of Niagara and other great falls proves that money is to be made from utilizing the vast power that nature has put into falling water. The unscrupulous promoter sets forth this information in his well printed prospectus. All is correct, perhaps, excepting the water privilege that is to be developed, which has something wrong about it. It may be a roaring torrent in time of freshet and a placid trout brook nine months of the year. The territory to be served with its power may be entirely without the requisite de-

mand. The initial investment for developing the power may be all out of proportion to the power to be obtained, which has happened in more than one such plan which was put through without taint of dishonest motive. The investor may readily find out about such a proposition if he is wise enough to make the attempt by writing to responsible persons in the neighborhood of the water privilege. If it is in a distant country, in South America or southern North America, or in Canada, or in a remote part of the United States, he should never put in his money until he has made sure. There is always some one who knows about a water privilege near enough to civilization to be worth developing.

The honest promoter invites such investigation, so that no reflection is cast upon the project by looking into it. In this respect the water development project is safer than the mining venture, for the water is in sight for all to see who will go to it. But men and women will continue to invest without looking beyond the prospectus. Good substantial business men, who are conservative enough in the conduct of their regular business, like to take a "little flyer" in a get rich quick plan. If they yield to the temptation, much more gullible must be the man who has had none of the necessary business training or experience which teaches that not all men are honest and that a statement is not necessarily true because it is in print.

The Attack on the Bankruptcy Act.

The attack on the national bankruptcy act, which has resulted in a report of the House Judiciary Committee recommending its repeal, is received with alarm by business interests everywhere, even while it is pointed out that there is little danger of the report being regarded with favor by Congress. The fear is that the present attack will eventually undermine the law, which has proved to be an important element in the clean and practical conduct of business. It is safe to assert that every member of Congress from a district containing large business interests will be informed of the views of constituents who are in manufacturing or commercial life.

The clumsy workings of State insolvency laws which the bankruptcy act wiped out are still fresh in memories of those business men who had experience with them, and there were few who escaped the annoyance. The impossibility of the equitable distribution of a debtor's assets among his creditors had hardly an exception unless where all the creditors resided in the same State as the insolvent, and this happened very rarely except in trivial instances. The abuses were many as well in the States having efficient insolvency laws in force as in those States where the statutory provisions regarding insolvency were unsatisfactory. The foreign creditor, living outside of the State where insolvency proceedings were inaugurated, was a constant menace, for he always had a club to hold over the head of the debtor in the form of a refusal to accede to a settlement unless treated as a preferred creditor and given more than his rightful share. There was hardly a failure of importance where one or more creditors did not make the attempt to use this power, and often successfully. If their demand was refused, then the debtor could not get a clean bill of financial health, and his future would be hampered by the power still resting in the hands of the foreign creditor, concerning whose claim the State court had no power.

In not a few States, perhaps in more than a majority, especially in the West and South, the insolvency laws were entirely inefficient. In some instances they were mere farces. A fair distribution of assets was hardly

expected, so easy was it for the debtor to make preferences without violating the statute. Unprincipled men made arrangements with relatives or close personal friends to appear as creditors against them, with claims aggregating nearly the whole estate, and this where there was absolutely no value received. These mock creditors got the lion's share of the debtor's property and later on returned it to him. The real creditor often fared very badly. A premium was placed on dishonest failures. In many cases the power of the foreign creditors to refuse to accede to a settlement was used honestly and to good purpose in compelling the debtor to be fair with them.

In the face of these well remembered facts few business men will entirely agree with the report of the Judiciary Committee, so far as insolvency is concerned, that "Doubtless the people of the various States uphold honest laws and the courts of the various States administer justice as honestly, faithfully and fully as do the federal courts." The reverse of this was true before the bankruptcy act went into effect. And even if it were true, the State courts could not from their very nature accomplish what can be easily wrought by a national law, which knows no difference between creditors residing in various States, but insists upon a just division of the debtor's property left after just debts are paid.

The Judiciary Committee itself believes that occasions may arise in the nation's financial life when a federal bankruptcy act is a necessity, as expressed in the report, that "should a panic arise and commercial disasters overwhelm the country, then it might be advisable to enact a temporary bankruptcy law." Such a suggestion is not businesslike. Congress does not act so hastily as to bring about a law to meet an emergency at the exact moment when it arises. The law should exist, always ready for the critical moment, as well as always caring for the interests of both debtor and creditor in the failures of the normal business year. The present law, with amendments where experience has shown they are needed, appears to be approved by the business interests of the country. It should be noted that the opposition to the present law centers in those States where the old insolvency laws were the most inefficient.

So long as sharp lawyers and dishonest clients exist there will be abuses of every law, including the bankruptcy law. But the point is that under the bankruptcy act there is less chance for the dishonest client who would cheat his creditors and for the creditor who would squeeze more than his share out of the bankrupt than there ever was under the State system. Naturally a more equitable condition must exist under a universal act, wisely framed, than under 45 or more State insolvency laws, no matter how well drawn they may be.

The Vicissitudes of the Railroad Demand.

The statement of the Pressed Steel Car Company for the calendar year 1904 is one of the most striking illustrations of the vicissitudes of the railroad demand ever presented. Manufacturers who make nothing but railroad supplies invariably experience either a feast or a fast. The railroad demand is either so great that it cannot be supplied or so small that it is a mockery to a manufacturer properly equipped. From 1899 to 1903 the Pressed Steel Car Company more than earned large dividends on its full stock, earning 28 per cent. on its common stock in 1902. But in 1904 it had so little business, being less than one-seventh of that of 1902, that it was obliged to draw heavily on its surplus to pay its dividends, being finally compelled to pass the dividend on the common. The surplus was thus reduced over \$2,000,-

000. The demand for steel cars is very much better now, the long fast having given way to another feast.

Trade-Mark Registration.

WASHINGTON, D. C., February 21, 1905.—The Bonyng Trade-Mark bill, which passed the Senate a fortnight ago, has finally reached the President, after an animated discussion of certain of its provisions in the conference between the two houses, and, following the usual custom, has been submitted to the Commissioner of Patents for a recommendation. It can be stated that Commissioner Allen will heartily indorse the bill, and there is no doubt that it will receive the President's signature within a few days, although if he chooses he can hold it for the constitutional period of ten days. The chief of the Trade-Mark Division of the Patent Office has practically completed a very careful revision of the regulations to be promulgated under the new law, and this will be printed for general distribution as soon as the bill is signed.

Amended in Conference.

The discussion of the bill in the Conference Committee proved to be much more important than was expected. The principal amendments added by the Senate related to the proviso to Section 5 of the bill, which as finally passed by that body reads as follows:

And provided further, that nothing herein shall prevent the registration of any mark used by the applicant or his predecessor or by those from whom title to the mark is derived, in commerce with foreign nations or among the several States or with Indian tribes, which was in actual and lawful use as a mark of the applicant or his predecessors from whom he derived title, for ten years prior to the passage of this act.

It was contended by the House conferees that in order to register an old trade-mark the claimant thereof must be able not only to show actual, but exclusive use, and many illustrations were presented of old trade-marks which have been employed by several manufacturers, no one of whom could maintain and claim to be the sole owner thereof. There was also some discussion concerning the propriety of the use of the word "lawful" as applied to a trade-mark, the contention being made by certain of the conferees that the question as to the legality of an old trade-mark ought not to be raised in this connection. The Senate conferees finally conceded these points, and the words "and lawful" were stricken out and the words "and exclusive" inserted in their stead.

The phrase "prior to the passage of this act" was also criticised by certain of the conferees as misleading. It was pointed out that many trade-marks employed years ago for a period of ten years have since been abandoned and have become public property, but under the terms of this act such marks could be resurrected and reregistered. It was suggested, therefore, that the words "prior to" be stricken out and "next preceding" inserted in lieu thereof. This suggestion was agreed to by the Senate conferees and the bill was finally passed with the proviso to section 5 amended as indicated.

Old Marks Should Be Reregistered.

As briefly stated last week, the deputy commissioner of patents and the chief of the trade-mark division of the Patent Office express the opinion, unofficially but quite unreservedly, that it is advisable for all trade-mark owners whose marks are employed in interstate commerce to reregister them under the new statute, that will go in force April 1. This opinion is based largely upon the decision of the United States Supreme Court in the case of *Warner vs. the Searle & Hereth Company*, in which it was held that the law of 1881, which the new Bonyng act will displace upon the statute books, provided only for the registration of trade-marks employed in commerce with foreign countries or with Indian tribes. The court in that case disclosed the fatal defects in the existing law which it is hoped have been cured by the measure which Congress has just passed, holding that trade-marks employed in interstate commerce were not eligible to registration in the Patent Office, thereby withdrawing

Federal protection from a number of well-known marks in use for many years.

In the opinion of the official experts, this decision of the court practically nullified the registration in the Patent Office of many thousand trade-marks recorded in the past 24 years, except so far as their use in commerce with foreign countries or with the Indian tribes is concerned. These marks, therefore, have no standing to-day in commerce between the States by virtue of registration in the Patent Office; but the Bonyng bill, which provides that "the owner of a trade-mark used in commerce with foreign nations, or among the several States, or with Indian tribes, provided such owner shall be domiciled within the territory of the United States, or resides in or is located in any foreign country which, by treaty, convention or law, affords similar privileges to the citizens of the United States, may obtain registration for such trade-mark by complying with the following requirements, &c., cures this defect in the law by specifically authorizing the registration of marks employed in interstate commerce.

The only possible question that can be raised in this connection is as to whether the enactment of the Bonyng bill may not operate to legalize trade-marks heretofore registered; in other words, as to whether it may be given a retroactive effect extending to interstate commerce the scope of the protection originally granted only for commerce with foreign countries and the Indian tribes. The Patent Office authorities have given very careful consideration to this question, but do not hesitate to advise the reregistration of all old marks. The reluctance of courts to treat the operation of a statute as *ex post facto* is fully appreciated, and while it is deemed possible that a retroactive effect may be given to the new law the chances of such a construction are so slight that manufacturers are advised not to take the risk with so valuable a piece of property as a successful trade-mark. It should be understood, of course, that this advice does not apply to a comparatively small but important class of trade-marks employed exclusively in foreign commerce which do not require to be reregistered, as the law heretofore in force amply protects them.

Early Application Desirable.

Prompt steps should be taken by all manufacturers to bring their trade-marks before the Patent Office for reregistration, in view of the fact that many thousand will be presented within the next few months, taxing severely the comparatively small force of the Trade-Mark Division. It is estimated that the business of this division will be more than doubled during the first year under the new law, and to meet this condition the Secretary of the Interior has asked Congress for an appropriation of \$20,000 to be made immediately available. This appropriation will provide for 14 additional clerks, including one principal examiner of trade-marks and designs at \$2500, two first assistant examiners at \$1800, &c.

W. L. C.

A decided position in opposition to the repeal of the national bankruptcy law was taken by the New York Board of Trade and Transportation at its monthly meeting on February 16, and it was announced that an effort would be made to enlist all the commercial organizations of New York City in an appeal to Congress not to take the backward step of repealing the act. The opposition to the law was denounced in speeches as being confined to dishonest debtors and those who had profited by the old system of State assignments. Strong resolutions were adopted in favor of one uniform national bankruptcy law.

Chicago's first annual exhibition of office appliances and business systems will be held at the Coliseum, March 15 to 22, inclusive. The circulars, which are sent out by H. A. Cochrane and F. W. Payne, who have the matter in charge, with offices in the Monadnock Block, characterize it as "a national business show where will be exhibited every conceivable labor, time and money saving device and business system that can be used in any office." Lectures are to be delivered on factory cost keeping, salesmanship and various other allied topics.

CORRESPONDENCE.

The Gayley Dry Air Blast.

To the Editor: In the discussion of Mr. Gayley's results which I had the honor to have published in the issue of this journal for February 16 a discrepancy appears through improper wording of a paragraph which looks large, and, while really not so, must not be allowed to pass without explanation. This occurred through a combination of haste and a desire to be brief, and while it was realized after mailing the letter it was too late to prevent publication.

I refer to the paragraph giving the quantities of heat available above the critical temperature with wet and with dry blast, the former being stated to be about 1100 B. T. U., and the latter about 1500 B. T. U., which are stated to be in just about the ratio of the fuel consumption in the two cases, the latter showing a decrease of about 20 per cent. As a matter of fact, the fuel consumption should be inversely as these quantities, or as 1.00 to 0.735, a gain of 26.5 per cent., or nearly 7 per cent. more than was actually obtained. This discrepancy, while only a small fraction of that obtained by any other method of calculation, is too large to pass without comment.

It will be observed first of all that this more than accounts for the saving made, which, according to these figures, should have been one-third greater. The explanation of the difference is believed to be as follows:

1. The higher percentage of carbonic acid in the gas with the dry blast caused a larger proportion of coke to be dissolved, so that it never reached the tuyeres at all. This would cause the quantity of heat developed in the hearth per unit of fuel charged to be smaller than that developed per unit of fuel actually burnt at the tuyeres in an increased degree.

2. It must not for a moment be forgotten that the heat balance worked out by Sir Lowthian Bell is absolute as far as the factors are correctly known, and that a certain total quantity of heat must be developed per unit of iron smelted, irrespective of the distribution of its parts at different temperatures. Therefore, if the increased oxidation of the carbon in the top gases and their reduced temperature did not yield as proportionately great an increase of total heat per pound of fuel as that given the high temperature heat by increase in the temperature and dryness of the blast, then obviously full advantage could not be taken of the latter increase, and the actual economy was accordingly less than that calculated in the same ratio. It will be seen that no effort is made to supplant, but merely to supplement, Sir Lowthian's heat balance, which is based on the very foundations of scientific knowledge: The conservation of energy.

But it is believed that the above reasoning will show that a complete expression of the thermal relations of the blast furnace will not be in the form of one equation, but of two, of which the first concerns itself solely with the total development and consumption of heat, the other with the temperature at which a part of that heat must be applied, or, more accurately, with the proportion of the whole which must be applied above a certain temperature.

As pointed out in my previous letter the means for determining one side of this second equation are ready to our hand, the data necessary for the other side are almost wholly lacking, but fortunately we can get on fairly well without them.

The tone adopted by many of those (particularly on the other side of the Atlantic) who have discussed this matter has implied rather strongly that since they were unable to make the published results agree with their calculations there must be something wrong with the published data; that, in brief it was a little doubtful if Mr. Gayley had really accomplished what he said. It would be preposterous for me to offer to champion Mr. Gayley, but as to his process I feel at liberty to say that years of independent observation and investigation prove the correctness of his results in general and in detail; it is only surprising that the magnitude of the saving published appears to be so little understood.

This letter, like the foregoing one, is offered as part of the discussion of this subject before the American Institute of Mining Engineers, and is published by *The Iron Age* previous to publication by the institute, with the permission of the latter. J. E. JOHNSON, JR.

LONGDALE, VA., February 16, 1905.

For the Bankruptcy Law.**Able Argument in Its Favor.**

WASHINGTON, D. C., February 21, 1905.—The friends in Congress of the Federal bankruptcy law do not intend to permit the Clayton bill, providing for the repeal of the statute, to pass either House before final adjournment on March 4, notwithstanding the favorable report secured from the Judiciary Committee during the absence of several of the majority members thereof. Not only will the Clayton bill be barred from passage, but the supporters of the Federal statute have prepared and will put into the official record a minority report, which will constitute one of the ablest papers on the subject of the Federal regulation of bankruptcy that has ever been contributed to the literature of this important question.

A Strong Minority Report.

The minority report—which, it can be stated, reflects the views of a large majority of the members of the House—is the work of Representatives Powers and Littlefield, who are commonly regarded as the ablest members of the House Judiciary Committee. It has been prepared in the form of an answer to the statements presented in the majority report, which appeared in these columns last week. Taking up the assertion that there is now a general demand for the repeal of the existing law, the minority report says:

"So far as we are able to learn there is no strong public sentiment in favor of the repeal of the law. No petitions were presented to the Committee on the Judiciary urging its repeal. No one appeared before the committee asking to be heard in behalf of the bill, although the bill had been pending before the committee for a long time.

"The present act of bankruptcy was enacted in 1898. It has been in force only about six years. The amendatory act was passed in 1903, at which time there was a careful investigation made of the sentiment of the country on the question of a national bankruptcy law. It was very strong in favor of the continuance of the present bankruptcy law as amended by the act of 1903.

"Judge Ray, at that time chairman of the House Committee on the Judiciary, sent out a large number of inquiries relating to different questions connected with the bankruptcy law. One of these inquiries was, 'Do you favor a Federal bankruptcy law rather than State insolvency laws?' This inquiry was sent broadly to merchants, both wholesale and retail, throughout the country. Eight hundred and twenty-three answered in favor of the retention of a Federal bankruptcy law and only 120 expressed a desire that the present law might be repealed.

"The present law has received the indorsement of the American Bar Association, of the Commercial Law League of America, of the National Board of Trade, of the National Association of Credit Men and of the numerous merchants' associations located at the great centers of trade throughout the entire country, and so far as we can ascertain the law is generally satisfactory to the great commercial interests of the country.

"It is conceded by those who would repeal the law that it is necessary that we should have in this country either a national system of bankruptcy or systems of State insolvency laws in order to meet the wants of the people. There ought to be no question as to which system is the better for the commercial interests of the country. The Constitution makes provision for the enactment of a national bankruptcy law. There is not an important commercial nation in the world to-day that has not some uniform system of bankruptcy law. England has maintained such a system for nearly three centuries. There are certainly stronger reasons why this country should have a uniform system of bankruptcy than even Great Britain. We have 45 States, each carrying on with every

other interstate commerce, and the necessity for some uniform system is apparent."

A Permanent Law Necessary.

The report then proceeds to discuss the contention of Mr. Clayton and his colleagues that "it has never been the policy of the United States to have a permanent bankruptcy law." In contravention of this view declarations are quoted from James Madison in the *Federalist*, from Daniel Webster when a member of the House, from Justice Story in his "Commentaries on the Constitution," from Senator Stanley Matthews, who opposed the repeal of the former statute in the Forty-fifth Congress; from Senator David Davis, who declared that "in a great commercial country like this a bankruptcy law is an absolute necessity;" from Senator John J. Ingalls, who declared that the country was "ill adapted to exist without a bankruptcy law in some form;" from Senator Roscoe Conkling and from Representative William P. Frye, now President *pro tem.* of the Senate, who declared that a permanent bankruptcy law was absolutely necessary and that commercial law without it "is as a man without an arm or without a leg."

Continuing, the report quotes from President Harrison's first annual message to Congress, in which it was stated that "the enactment of a national bankruptcy law of a character to be a permanent part of our general legislation is desirable," and that "the conflicting State codes of insolvency should be removed by the enactment of a simple, inexpensive and permanent national bankruptcy law." The late Representative Nelson Dingley is referred to as declaring that "we can see in the development of the means of communication in this country a reason, a necessity for national bankruptcy legislation which did not exist 50 or 75 years ago; . . . State lines have been broken down commercially in the progress of this nation."

Amendments May Be Made.

Referring again to the Clayton report, it is denied that "trial and experience have demonstrated manifold imperfections of this law." It is conceded that there are bills pending in Congress for the amendment of the law in certain particulars, and it is stated that if such amendments are desirable, they will receive favorable consideration. It is vigorously denied, however, that the country is now in such a condition that it can without injury to its great business interests dispense with the bankruptcy law. On the other hand, it is asserted that our great prosperity since 1898 has been more or less dependent upon our uniform system of bankruptcy legislation, which has increased the confidence in the credit system and has made it possible for every creditor to be treated with justness and fairness. If the bankruptcy law is repealed and State insolvency laws substituted in its place, providing for preference to local creditors, &c., credit will thereby become contracted, the confidence of the creditor class in the debtor class will be lessened, and business will be seriously interfered with. Instead of having one national system for the administration and distribution of bankrupt assets, we will have in place of it 45 systems, differing as to their methods. In conclusion the report says:

"The present bankruptcy law is economical, prompt and efficient. It is being well administered. The tendency of legislation, as of commerce, is Federal, not State. The 45 State systems present few instances where all creditors are treated alike. They are diverse in provision and practice, and in many cases permit preferences to a specified amount. All permit of tedious delay, and some seem to decree denials of justice. Each of them, in particular, for instance, that of New York, encourages friendly receiverships of failing corporations.

"If there were any strong demand for repeal it would be reflected in the reports of the Attorney-General, all of which have been uniformly commendatory of the law as one of administration and relief. If there were any strong demand for appeal it would certainly have been discussed and urged in the daily press, and particularly in the trade newspapers. There has been practically no such discussion. Our people have regarded the bankruptcy statute as a permanent feature of our jurisprudence, and have considered only those clauses in the law

which perhaps ought to be amended. The great argument in favor of the present law is that it is uniform in its operation; that it brings each creditor and each debtor in the country under its administration; that it treats all creditors alike, not only in giving to them an equal share in the distribution of assets, but also an equal share in the naming of the administering officer. It is a law that is of great service to the country, not only in time of prosperity, but will be of even greater service in times of depression and business adversity. For these reasons we earnestly protest against the passage of the bill and the consequent repeal of the law."

The considerations set forth in this report have been brought to the attention of the House Committee on Rules, and it can be stated that the Clayton bill probably will not be permitted to come before the House prior to adjournment.

W. L. C.

PERSONAL.

Willis L. King, vice-president of the Jones & Laughlin Steel Company, Pittsburgh, fell one evening last week while leaving his home and fractured his leg. His physician states that a quick recovery from the accident is anticipated, but Mr. King will be confined to his house for some time.

H. P. Bope, first vice-president of the Carnegie Steel Company, made the principal address at a banquet of railroad freight traffic officials at the Arkwright Club, New York, February 18. His theme was "The Community of Interest and Its Benefits."

H. Velde, president of T. & H. Smith & Co., manufacturers of farm wagons, trucks, &c., Pekin, Ill., will retire from his official position on account of ill health, being succeeded by Conrad Luppen. Mr. Velde will retain his interest in the company.

Dalton E. Perkins, president of the Eagle Iron Works, Des Moines, Iowa, recently left for southern California, where he will stay for two months.

Wm. A. Douglass, for years associated with the advertising department of *The Iron Age* at Chicago, has gone to the Pacific Coast, where he intends to establish himself in business.

W. R. Artridge, superintendent of the Bristol Furnace of the Virginia Iron, Coal & Coke Company, Bristol, Tenn., has been transferred to the furnace of the same company at Max Meadows, Va. He is succeeded by W. T. Rutherford, formerly of Roanoke, Va.

Charles Barnes, formerly a resident of Chicago and long identified with important iron and steel interests, has formed a connection with the Youngstown Iron & Steel Roofing Company, Youngstown, Ohio, as salesman, calling on the jobbing trade and large manufacturers. The company manufactures black and galvanized iron and steel sheets as well as roofing, siding and other sheet metal specialties.

Judge P. S. Grosscup of the United States Circuit Court, Chicago, whose public utterances against monopolies have attracted much attention, has been placed in a peculiar position by being enjoined as one of a number of capitalists interested in a merger of gas companies in West Virginia.

Samuel W. Croxton of Cleveland, Ohio, has just reached home from a trip to Egypt.

The announcement is made that Charles M. Schwab, president of the Bethlehem Steel Corporation, sails for Europe on April 18.

M. Ikal, chief engineer of the Sumitomo Copper Works of Osaka, Japan, is traveling in this country, studying American methods of copper and brass rolling.

A deal was closed last week by which F. N. Beegel, George Davidson and Frederick Davidson, owners of the Union Drawn Steel Company, Beaver Falls, Pa., become the controlling stockholders of the Beaver Falls First National Bank.

Joseph T. Ryerson & Son, Chicago, have promoted G. H. Pearsall to the position of general sales manager, made vacant by advancing L. M. Henocho to the secretaryship.

Customs Decisions.

Decisions in two of the most important steel classification cases which have come before the Board of United States General Appraisers for several months were handed down February 16. They concerned the duty on sheet steel in strips and on steel wool.

Sheet Steel in Strips.

The sheet steel in strips case is one that has attracted a great deal of attention, as it is the third attempt by the importers, Hermann Boker & Co., New York, to obtain a favorable ruling on the same claim. The merchandise consists of cold rolled steel in coils varying from 50 to 200 feet in length, from $\frac{1}{2}$ to 6 inches in width and from 3-1000 to 25-1000 inch in thickness. It was assessed for duty under paragraph 137 of the Tariff law, which reads as follows, as far as pertinent to the goods under consideration: ". . . Iron or steel or other wire not specially provided for in this act . . . and sheet steel in strips 25-1000 inch thick or thinner, . . . valued at more than 4 cents per pound, 45 per centum ad valorem." The importers claimed that the goods were properly dutiable at various specific rates according to value under paragraph 135, which provides for steel in all forms and shapes not specially provided for. General Appraiser Fischer, who writes the opinion of the Board overruling this claim, reviews the testimony and presents the following conclusions:

From the practically uncontradicted evidence before us we find the following facts:

1. That on and prior to August 28, 1894, the term "sheet steel in strips" had a definite, general and uniform trade understanding throughout the United States, and that the merchandise known by that name included the merchandise under protest.
2. That on and prior to August 28, 1894, the term "flat wire," as used in trade and commerce in this country, had a definite, general and uniform understanding, and that such term included the merchandise under protest.
3. That prior to August 28, 1894, the merchandise under protest was known in the trade and commerce of this country interchangeably as flat wire and as sheet steel in strips.
4. That prior to August 28, 1894, strips of steel cut from hot rolled sheet steel, and measuring 25-1000 inch thick or thinner, if dealt in at all, were dealt in to a very small and inappreciable extent and were known as sheet steel, and that the term sheet steel in strips was not used in trade to designate such merchandise.

We find as conclusions of law that the protests should be overruled.

Steel Wool.

The steel wool case was also one that attracted a great deal of attention. The testimony was first taken before General Appraiser Fischer and his decision was written, when the attorneys for the importers, the Buehne Steel Wool Company, New York, asked permission to reopen the case, and it was taken before Sub-board No. 1, consisting of Judges Henderson M. Somerville and Byron S. Waite and General Appraiser Eugene G. Hay. This board went over all the testimony again and brings in a split verdict. The majority opinion written by Judge Somerville and concurred in by Mr. Hay sustains the claim of the importers, while Judge Waite writes a minority opinion in which he declares that the protest should be overruled.

The merchandise is what is variously known as steel wool or steel fiber. It was originally a by-product in the manufacture of lathe turned goods, but the demand for polishing purposes has become so great that it is manufactured now in large quantities on patented machines designed for the purpose. It was assessed at 45 per cent. as a nonenumerated manufacture of metal, and the importers claim, which is sustained by the majority opinion of the board, is that it is dutiable at various specific rates, according to value, under the provision for "steel in all forms and shapes not specially provided for." Judge Somerville in his majority opinion says:

It is shown from the testimony in the present case that the particular steel wool under consideration was made from steel wire through the use of machinery by passing toothed knives over the wire, the article really consisting of the filaments or shavings taken off of the wire by these knives.

We sustain the claim that the importations fall within the purview of said paragraph 135, being included within the phrase,

"steel in all forms and shapes not specially provided for." This precise claim was sustained by the board in reference to merchandise of exactly the same kind as that now before us upon a protest of the same importer, the Buehne Steel Wool Company.

Judge Waite in his dissenting opinion says:

I dissent from the conclusion reached by my colleagues with reference to the first ground, which is that the commodity should be assessed under paragraph 135 of the tariff act of 1897.

It will be seen that paragraph 135 provides for commodities in the rough, which are very plainly raw material for a more advanced stage of manufacture, and concludes with the words, "sheets and plates and steel in all forms and shapes." It is contended that this steel wool is provided for in the clause, "steel in all forms and shapes." It is very apparent to my mind that it was not intended to include within this paragraph any finished articles or wares.

To hold that steel wool should be classified thereunder would render absolutely nugatory the provisions in paragraph 193, because it must be admitted that any commodity which would fall under the description in said paragraph 193, and is composed of steel, would necessarily be included in the broader provision for "steel in all forms and shapes." If steel wool is to be included thereunder, then saws, if not specially provided for, when completed as a finished article, would fall thereunder; and edged tools, made of steel, or of alloys used as substitutes for steel in the manufacture of tools, would also be included. But such has not been the interpretation heretofore given to the various provisions of this statute. The very expression, "forms and shapes," appeals to the mind as referring to the commodities preceding it in paragraph 135, as they are all simply forms and shapes, intended to be finished by a further and higher process of manufacture.

NEWS OF THE WORKS.

Iron and Steel.

It is stated that a number of Americans have asked a concession from the Mexican Government for the establishment of a large iron and steel plant at San Luis Potosi.

A recent fire at the Tredegar Iron Works, Richmond, Va., destroyed the shed over the angle bar mill and damaged the machinery to some extent. The loss is covered by insurance and the plant will be immediately reconstructed.

It is reported, but not officially confirmed, that the Republic Iron & Steel Company will build a new blast furnace at Haselton, near Youngstown, Ohio.

The repairs to the furnaces of the Lackawanna Iron & Steel Company in the Lebanon, Pa., district are being rushed, and two of the furnaces will be started within a short time. The other three will be put into blast this spring from all accounts.

The Susquehanna Iron & Steel Company has started its rolling mill at York, Pa., after a long idleness. The full force of men is employed, and Jacob Mattern, formerly with the Reading Iron Company, is now managing the mill.

The Central Iron & Steel Company is rolling at its mills in Harrisburg, Pa., a large number of plates designed to go into locomotives to be built for the Japanese Government by the Baldwin Locomotive Works. The same company has been working on bridge plates for the new Quebec bridge. Its big plant is now in full operation and another new open hearth furnace will be started as soon as completed.

No. 2 furnace of the Warwick Iron & Steel Company, at Pottstown, Pa., broke its record for a week this month. The stack has been producing largely since blown in after repairs.

General Machinery.

The Iowa Building Block Machine Company has been formed at Waterloo, Iowa, to make and sell building block machines. The company is granted a charter for 20 years and is capitalized for \$60,000. Its officers are: President, George L. Dixon; vice president, H. L. Green; secretary, A. B. Burgess; treasurer, D. P. Faus. At present the machines are being built under contract and the erection of a factory has not yet been decided upon.

The Somerville Machine & Mfg. Company, Pittsburgh, will erect a new plant in that city, 74 x 89 feet, six stories high, and of slow burning construction.

The Stanton Foundry & Machinery Company, Palatka, Fla., desires prices and descriptions of rollers, a traction engine and cars for good road building.

The Linderman Mfg. Company, formerly at Whitehall, Mich., has removed to Muskegon, where it expects to double its capacity for the manufacture of special wood working machinery. The company expects to be in the market for new tools and appliances, including a 50 horse-power engine of some economical type.

Gould & Eberhardt, designers and builders of high class machine tools, Newark, N. J., are building a new one-story brick

addition to their foundry, 29 x 63 feet. All the equipment for this new addition has been purchased.

Within the last few months the Ball Mfg. Company, Stamford, Conn., has installed considerable new equipment in its plant, including a 30 horse-power two-cylinder vertical gas engine, a 150-light dynamo, four lathes, one universal milling machine, an 18-inch shaper, two upright drill presses, drill grinder, power hack saw, and several smaller tools.

There is no truth in the report that the Minneapolis & St. Louis Railroad will build shops at Fort Dodge, Iowa.

F. H. Davis & Co., 161 Devonshire street, Boston, dealers in paper mill machinery, are building a one-story shop and storehouse, 106 x 120 feet, at Cambridge, and will remove their present repair shop to the new building when it is completed. They state that they will probably need a few machine tools a little later in the season.

The plant of the Greer-Clarkson Company at Manheim, Pa., which was sold by the trustee, B. H. Hershey, some days ago, will be started within a short time by the new owners. The company has a large machine shop.

Power Plant Equipment.

G. W. Heinzmann & Co., Noblesville, Ind., have secured a franchise from that city to light the city for ten years. The new company takes in the old one and also the Noblesville Hydraulic Company. The work on the hydraulic dam, suspended two years ago, will be resumed, and the present steam plant will be remodeled and held in reserve.

The Bicknell Light & Power Company has been incorporated at Bicknell, Ind., with \$10,000 capital stock, by August L. Brocksmith, Beverly P. Barnes and Jas. G. Welton.

The Linton Water Company, Linton, Ind., has increased its capital stock from \$60,000 to \$100,000.

The Jeffersonville Water Works Company, Jeffersonville, Ind., has made a new contract with the city to either put in filter beds or build a new plant in another location.

The MacKinnon Mfg. Company, Bay City, Mich., has recently closed the following contracts: German-American Sugar Company, West Bay City, Mich., three 72-inch by 18-foot tubular boilers, with fittings and fixtures; E. B. Foss & Co., Bay City, Mich., one 72-inch by 16-foot tubular boiler; Davison Lumber Company, Springfield, Nova Scotia, one 34 x 118 foot high water space refuse burner; Diamond Match Company, Chico, Cal., one 36 x 108 foot brick lined burner.

Frank P. Lord, Bath, Maine, has sold his gasoline engine manufacturing business to the Kennebec Machine Works of that city, which will carry it on in connection with its own work. The engine plant is completely equipped and it is not likely that the new owners will require any additional machinery.

The Fitz Water Wheel Company, Hanover, Pa., is preparing plans for a new and improved plant to cope with its trade, which has outgrown its present facilities. The company has an unusual number of inquiries for its I-X-L steel overshoot water wheels and has just received some nice orders from Brazil.

Bridges and Buildings.

Zirngibl & Marshall, Spokane, Wash., were awarded the contract for the Olive street bridge in Spokane for \$8384.50.

The Board of Commissioners of Porter County, meeting at Valparaiso, Ind., will receive bids until March 6 for the construction of a steel bridge.

The Board of County Commissioners of Fulton County, meeting at Wabash, Ind., has been authorized to issue \$48,000 in bonds to raise money for bridges.

Foundries.

The Gibson-White Foundry Company has organized at Chattanooga, Tenn., to manufacture tinware, stoves and the like and do general foundry work. A tract of land has been purchased on Elm street and the erection of a foundry building will be commenced at once. The capital stock of the company is \$10,000 and the incorporators are as follows: Filmore Gibson, William White, W. E. White, C. A. White and D. S. Adams. Mr. Gibson was formerly connected with the Gibson-Love Mfg. Company, stove maker, and the other incorporators were formerly in the foundry business at Dayton, Ohio.

The city of Chicago is advertising for bids for its requirements up to December 31, 1905, of cast iron rings and covers for hydrant chambers, weighing 200 to 210 pounds each, for Holly and Cregier hydrants; special castings for water pipe, brass castings for hydrants and stop valves, gray iron castings for hydrants and stop valves; approximately 2200 cast iron valve basin covers, curbs to weigh 370 pounds and lids to weigh 125 pounds each. Bids for all these supplies will close March 4.

The Summit Foundry Company, Geneva, N. Y., will establish a branch at La Crosse, Wis., where it will occupy the buildings formerly used by the Fountain City Drill Company. The buildings will be remodeled and it is expected that they will be ready for operation by June 1.

The recent fire at the plant of Stewart & Bruckner, Nashville, Tenn., only damaged the foundry building, pattern shops

and patterns, there being very little injury done to the machinery. The firm is now running part of its plant and will be completely under roof in a few days, when it will be doing business the same as before the fire.

W. H. Woody, Jr., formerly superintendent of the Wm. R. Trigg Company, and Chas. Winburne, formerly foreman of the foundry department of the Trigg Company, have leased a foundry in Richmond, Va., completely equipped with modern appliances, which they will operate under the name of the Shockoe Foundry Company. The foundry is 120 x 120 feet, with separate storage houses for coke, sand and other materials, and the equipment consists of two electric traveling cranes, one 10-ton and one 5-ton cupola, and a brass and bronze furnace with a melting capacity of 4 tons a day, the whole conveniently arranged for both large and small castings. The company is prepared to cast in iron up to 40 tons and in brass and bronze up to 2½ tons. There are also two large core ovens of ample size to accommodate marine and Corliss engine cylinders. The plant has excellent shipping facilities both by land and water.

The Carroll Foundry & Machine Company, Bucyrus, Ohio, will erect a new steel foundry building this summer, 130 feet wide by 300 feet long. The company will buy considerable new machinery, to be installed in this new foundry.

The Springer, Lister Company, South Knoxville, Tenn., which commenced business about a year ago, has incorporated recently under the State laws of Tennessee. The company has erected a machine shop, 35 x 60 feet, and foundry, 50 x 60 feet. It manufactures derricks, hoists, gangs, cast iron and brass goods, swing saws, edger tables, and makes a specialty of large pulleys, fly wheels and band wheels.

Fires.

The plant of the Detroit Steel Casting Company, Detroit, Mich., was almost entirely destroyed by fire February 19. This loss is estimated at between \$80,000 and \$100,000.

The Clay Gasoline Engine Company's plant, near Chagrin Falls, Ohio, was recently destroyed by fire, the loss being about \$30,000.

At a recent fire in Laconia, N. H., the plants of the Winnepesaukee Lake Cotton & Woolen Mfg. Company, Henry D. Clow & Sons, Hipwood Car Fender Company and Geo. D. Merrim were destroyed by fire. The combined loss is placed at \$100,000.

An explosion at the Brooklyn Sulphur Works, Brooklyn, N. Y., last week, did \$10,000 damage.

The New Hampshire Traction Company lost \$10,000 worth of materials, and the Slipper City Wood Heel Company and C. W. Hazelton & Co., leather workers, sustained a total loss on machinery and stock in a fire at Haverhill, Mass., February 8, the total damage being \$15,000.

The plumbing shop of the Buckingham & Routh Company, New Haven, Conn., was recently damaged by fire to the amount of \$5000.

Hardware.

The Wolters-Batey Company, Manistee, Mich., is a new enterprise, representing the consolidation of the business of Leon A. Wolters and the J. O. Batey Saw & Supply Company. The company is capitalized at \$80,000, fully paid in, and its officers are Leon A. Wolters, president and general manager; J. O. Batey, vice-president, and W. J. Graham, secretary and treasurer. Other stockholders in addition to the above are George M. Burr, E. Golden Flier and J. O. Nessen. The company will manufacture circular saws and saw tools, will conduct a jobbing business in heavy hardware, mill and vessel supplies, leather and rubber belting, &c., and will deal in filing room machinery, various kinds of saws, machine knives and second-hand specialties used in mill and factory plants. Contract has been entered into for the erection of an up to date building, which will be ready for occupancy June 1 next. The company already has a manufacturing plant in operation.

The Hovland-Payson Company has incorporated at Chicago to manufacture hardware specialties, such as transom lifters, anti-friction casters, sash locks, steel planes, &c. The company has a modern equipped factory at 253 East Kinzie street, and reports a large number of orders on hand. J. S. Hovland is president and J. R. Payson secretary of the company.

The business conducted by J. H. Crammond at Waukegan, Ill., has been incorporated under the name of the Crammond Mfg. Company, with a capital stock of \$100,000. The line of manufacture consists of washing machines, churns and dish washers. General offices of the company are in the Masonic Temple, Chicago. In addition to Mr. Crammond, Wm. F. Blake and Leroy Frank Hill are interested as incorporators.

The Parsons Band Cutter & Self Feeder Company, Newton, Iowa, has purchased the business of the Ruth Self Feeder Mfg. Company, Halstead, Kan. Manufacturing operations will be continued at Halstead during the balance of the present year, but at the beginning of the new season the entire business will be removed to Newton.

James McKay & Co., Pittsburgh, manufacturers of chain, will be succeeded by a corporation to be known as the James McKay Company.

The Hammond & Harmount Company, Rockford, Ill., has been incorporated. It will manufacture a button hole attachment for sewing machines.

The Thornton Buggy Company, Hoopeston, Ill., organized with a capital stock of \$25,000, will manufacture fine carriages, buggies and wagons. Officers have been selected as follows: S. A. D. Harry, president; H. L. Thornton, vice-president and manager, and Earle C. Thornton, secretary-treasurer.

J. Walter Miller, 41 East Chestnut street, Lancaster, Pa., who for five years has manufactured brass and bronze castings and who has given special attention to contracts for manufacturers, is erecting a building 50 x 100 feet in size, which will be equipped with modern cranes and hoists, to increase his capacity and enable him to execute large work. In the spring another building, 50 x 80 feet, of three stories, will be put up, and his line extended to include locks, night latches, house numbers, &c.

The Texas Twentieth Century Washing Machine Mfg. Company, Royse City, Texas, has incorporated with a capital stock of \$10,000. The officers are: A. C. Pedigo, president; R. Z. Dyer, vice-president; E. G. Cochran, secretary, and Thos. Stewart, treasurer. The company expects to be able to place its machines on the market within 15 days.

Miscellaneous.

The Akron-Selle Company, Akron, Ohio, manufacturer of metallic wagon gears, has purchased property on the Belt Railway in Akron and is having plans prepared for a large addition to its plant.

The South Bend Iron Bed Company, South Bend, Ind., has increased its capital stock to \$25,000. The capacity of its plant is 150 beds daily.

The American Carbon & Battery Company, St. Louis, Mo., will erect a \$200,000 plant at East St. Louis, Ill., and will be in the market for iron and steel and such other material as is required in the erection of buildings.

The Wausau Gas Light & Coke Company, Wausau, Wis., is making preparations for extensive improvements in its plant, involving a probable expenditure of \$75,000. A. J. Swope is secretary of the company.

The Adams Storage Battery Company, which was recently organized at Camden, N. J., with a capital stock of \$4,000,000, will establish a new plant for the manufacture of its patent storage batteries. The company was incorporated through the law offices of Edwin G. C. Bleakly, Camden, N. J., from whom information can be obtained.

The Richmond Pattern Works, Richmond, Va., has added a structural and ornamental iron department to its manufactory, which has necessitated extension of its equipment. The company has erected a blacksmith shop, 30 x 50 feet, and has installed a shearing punch for cutting steel, four drill presses, a large pipe threading machine and an iron lathe. It is about placing on the market patterns of a new line of square oven wood and coal burning cook stoves in three sizes, and also a line of patterns of portable ranges in four sizes.

The Mineral Ridge Mfg. Company, Mineral Ridge, Ohio, is preparing to erect a large addition to its plant for the manufacture of steam hoists and cages. The company will increase its capital stock to \$100,000.

Benjamin F. Otis has been elected president of the Union Water Meter Company, Worcester, Mass., filling the vacancy caused by the death of John P. Otis. H. A. Ball fills the vacancy in the Board of Directors. This makes the board consist of the president, Benjamin F. Otis; treasurer, Edward P. King, and Harrison G. Otis, Ezra Sawyer, Charles G. Stratton, and H. A. Ball.

The Heywood Boot & Shoe Company, Worcester, Mass., is to build a five-story brick addition, 30 x 162 feet, to increase manufacturing space.

The Republic Iron & Steel Company, in addition to building 400 coke ovens in the Connellsville region proper, intends to establish coke plants on what is known as the Dunlap Creek property to take care of its requirements of furnace coke for its blast furnaces in the Mahoning and Shenango valleys and also of coke for the Bessemer steel plant at Youngstown, Ohio.

The plant of the Foreman Can Company, at Greensburg, Pa., now in the hands of receivers, is for sale. The company was formed for the purpose of making milk cans and dairy supplies and has a very complete stamping plant.

The Dow Composing Machine Company, New York, has increased its capital stock from \$3,000,000 to \$4,000,000.

The Lozier Motor Company, New York, has increased its capital stock from \$500,000 to \$1,000,000.

The Niagara Tachometer & Instrument Company has been incorporated at Niagara Falls, N. Y. Capital, \$200,000. Directors: Charles R. Huntley, George J. Howard and Addison H. Hinman of Buffalo. Mr. Huntley is general manager of the Buffalo General Electric Company and the Cataract Power & Conduit Company. It is the intention of the new company to erect and equip a factory at Niagara Falls.

The Pittsburgh Coal Company, Pittsburgh, has elected the following new directors: Calvary Morris, president of the Cleveland Trust Company, Cleveland, Ohio; Henry R. Rea, F. M. Wallace and Judge Elliott Rodgers, all of Pittsburgh.

The William L. Gilbert Clock Company, Winsted, Conn., is planning making a considerable addition to its works this season, but the details of the plans are not yet ready for announcement.

The Peden Iron & Steel Company, wholesaler in roofing materials, heavy hardware, tinner's supplies, engines, boilers and similar goods, Houston, Texas, has purchased block 50 in the Fifth ward, Houston, as a permanent home for its business, it being the intention to later erect fire proof warehouse buildings thereon. The present plan of the company, which, however may not be carried out for several months, embodies the concentration on this property of its general offices and entire stock of merchandise.

The Windham Mfg. Company, Willimantic, Conn., is contemplating the erection of a weave shed which will represent an investment of nearly \$125,000.

The Nelson Mfg. Company, Quincy, Mass., has been incorporated under Massachusetts laws with authorized capital stock of \$20,000, to manufacture ball cocks and other plumbers' supplies. The officers are: President, Albert Nelson; treasurer, Julius Johnson, and clerk, George E. Adams. The company plans to erect a small shop in the spring.

The Fellwock Roll & Panel Company has been incorporated at Evansville, Ind., with \$50,000 capital stock, by Fred. Bostage, Wm. J., Fred. and Paul B. Fellwock.

The Lehigh Portland Cement Company, Mitchell, Ind., will soon erect mill No. 2. Among the machinery to be installed will be engine and boilers and three crushers.

The plant of the Wagner Plow Company, Indianapolis, Ind., will be sold under orders of the Superior Court. It has been in the hands of the Central Trust Company, Indianapolis, receiver, for six months.

The Rubbernit Water Proofing Company, Rutland, Vt., a new corporation organized to manufacture water proofing, will need a small boiler and a large steam kettle for making its compound.

The Lynn Gas & Electric Company, Lynn, Mass., is planning to build a new gasometer with a capacity of 2,000,000 cubic feet.

The entire capital stock of the American Card Clothing Company, Worcester, Mass., has been purchased by a syndicate of Massachusetts and Rhode Island capitalists, headed by Henry Ashworth of Fall River. The present company was incorporated under Massachusetts laws a few days ago, the capital stock being \$105,000. Formerly it was a West Virginia corporation with capital stock greatly in excess of present valuation as indicated by the new corporation, which is said to be rather under the actual valuation. The price paid was certainly greatly in excess of \$105,000. The company is a combination effected 18 years ago of 17 independent card clothing manufacturers and operates plants at Worcester and Leicester, Mass.

Chas. F. Loudon, Cincinnati, and Albert Blackledge, Indianapolis, have leased the buildings of the Terre Haute Shovel & Tool Company, Terre Haute, Ind., and will equip them as a canning factory.

The Pittsburgh Mfg. Company.—This company, whose offices and works are at Twenty-eighth street and the Allegheny Valley Railroad, Pittsburgh, Pa., has added an important branch to its business. It has begun the manufacture of a full line of Ludlow valves and Ludlow hydrants and is prepared to figure on this class of work for engineers, contractors and water companies, or for valves for heavy pressure of steam, gas or oil. By way of special announcement to the trade relative to this new product the company has issued a 62-page catalogue descriptive of the characteristics and special features of construction in the Ludlow type of valve and hydrant, which long ago commended these devices to engineers and mechanical men. The catalogue covers a great variety of styles and sizes and gives full details of dimensions. In connection with this information a number of pages are assigned to general mechanical matters connected with water works installation, comprising formulae for thickness and weight of cast iron pipe; tables of thickness and weight of cast iron pipe based on tensile strength of 18,000 pounds per square inch and running from 50 to 150 pounds working pressure; tables to determine the relation between velocity, volume and area; rules to determine the velocity of flow in feet; tables showing the pressure of head of water per square inch for each foot of head; weight of lead and yarn used per joint in laying cast iron pipe; capacity of cisterns of specified depth and diameters in cubic inches, cubic feet and barrels; equations of pipes of different diameters showing the relative capacity under the same pressure, and compound units for measures of pressure and weight.

The Iron and Metal Trades

There has been a very heavy movement in Pig Iron in the Eastern markets. Steel makers in the Philadelphia district have bought fully 75,000 tons of Basic Pig Iron at \$16 at furnace, deliveries in some cases to run well to the end of the year. Schuylkill Valley furnaces have also sold fully 25,000 tons of Foundry Iron in lots running up to 3000 tons. In the New York market a leading pump interest has purchased about 5000 tons, and other melters have bought. A large electrical company has taken some round blocks of Foundry Iron, Buffalo doing the bulk of the business. That producing center has also sold to a group of Malleable foundries fully 25,000 tons of Malleable Bessemer. In the Pittsburgh district a large manufacturing concern has purchased 21,000 tons of Foundry and Forge Iron, 8000 tons thereof from Southern makers on the basis of \$13.50, Birmingham, and 13,000 tons at about \$15.75, Valley furnace. Other distributing centers report an increasing interest and the market is very firm. It has not yet, however, shown any actual advance over recent figures.

An interesting inquiry is for 21,000 tons of Pig Iron for the Castings of another tunnel under the Hudson River.

It is understood that the United States Steel Corporation is again testing the market for additional supplies, the tonnage needed being estimated at about 40,000 tons.

Some large additional sales of Steel Rails have taken place. The Rock Island Company has contracted for 49,000 tons, the Great Northern and Northern Pacific have together taken 50,000 tons, and two Wisconsin lines 30,000 tons. There is additional tonnage of importance coming up, so that a fair amount of work for the Rail mills for this year is assured.

Last week an advance was announced of \$2 per net ton on Structural Material and on Plates. It is understood that some of the leading interests were somewhat adverse to this action at this time, but the rise in raw materials during the past six months was presented as a strong argument by many makers.

The railroad equipment companies have been booking quite heavily lately, and a good deal of additional business is in sight. The Pennsylvania Railroad is buying 12,000 cars and a very large number of locomotives, and other systems are in the market. This is helping the Plate mills, Tube works and Structural mills.

It is not probable that any advance will be made in Tin Plate until the end of next month. The Sheet requirements continue heavy, but the buying of Wire is limited at this time, as usual. It is expected, however, that the demand will again set in somewhere between the early part and the middle of March.

Eastern Bar Iron makers did not make any change in prices last week. The makers of Steel Bars are, however, expected to meet next week, on which occasion some change in prices may be made.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type,
Declines in Italics.

At date, one week, one month and one year previous.

Feb. 22, Feb. 15, Jan. 25, Feb. 24,
1905. 1905. 1905. 1904.

PIG IRON:

Foundry Pig No. 2, Standard,				
Philadelphia	\$17.50	\$17.50	\$17.50	\$14.50
Foundry Pig No. 2, Southern,				
Cincinnati	16.25	16.25	16.25	11.75
Foundry Pig No. 2, Local, Chicago.	17.50	17.50	17.50	13.00
Bessemer Pig, Pittsburgh.....	16.35	16.35	16.85	13.60
Gray Forge, Pittsburgh.....	16.00	16.00	16.10	12.75
Lake Superior Charcoal, Chicago	18.50	18.50	18.50	15.75

BILLETS, RAILS, &c.:

Steel Billets, Pittsburgh.....	24.00	24.00	23.00	23.00
Steel Forging Billets, Pittsburgh	26.00	26.00	25.00	...
Steel Billets, Philadelphia.....	28.00	28.00	25.00	24.00
Steel Billets, Chicago.....	27.00	27.00	25.00	24.00
Wire Rods, Pittsburgh.....	31.00	31.00	31.00	30.00
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	28.00

OLD MATERIAL:

O. Steel Rails, Chicago.....	14.50	15.50	16.00	11.50
O. Steel Rails, Philadelphia....	18.00	18.00	17.50	13.50
O. Iron Rails, Chicago.....	19.50	20.50	21.00	17.00
O. Iron Rails, Philadelphia....	23.00	23.00	23.00	15.00
O. Car Wheels, Chicago.....	16.25	16.25	16.50	14.50
O. Car Wheels, Philadelphia....	16.00	16.00	16.00	13.00
Heavy Steel Scrap, Pittsburgh...	15.50	16.00	16.00	13.75
Heavy Steel Scrap, Chicago....	14.00	14.00	14.50	11.50

FINISHED IRON AND STEEL:

Refined Iron Bars, Philadelphia.	1.73½	1.73½	1.63½	1.40
Common Iron Bars, Chicago....	1.65	1.65	1.65	1.40
Common Iron Bars, Pittsburgh..	1.65	1.65	1.74½	1.34½
Steel Bars, Tidewater.....	1.54½	1.54½	1.54½	1.44½
Steel Bars, Pittsburgh.....	1.40	1.40	1.40	1.30
Tank Plates, Tidewater.....	1.74½	1.64½	1.64½	1.74½
Tank Plates, Pittsburgh.....	1.60	1.50	1.50	1.60
Beams, Tidewater.....	1.74½	1.64½	1.64½	1.74½
Beams, Pittsburgh.....	1.60	1.50	1.50	1.60
Angles, Tidewater.....	1.74½	1.64½	1.64½	1.74½
Angles, Pittsburgh.....	1.60	1.50	1.50	1.60
Skelp, Grooved Steel, Pittsburgh	1.60	1.50	1.55	1.42½
Skelp, Sheared Steel, Pittsburgh	1.65	1.55	1.60	1.47½
Sheets, No. 27, Pittsburgh.....	2.20	2.20	2.20	2.20
Barb Wire, Pittsburgh.....	2.25	2.25	2.20	2.50
Wire Nails, Pittsburgh.....	1.80	1.80	1.75	1.90
Cut Nails, Pittsburgh.....	1.80	1.80	1.75	1.70

METALS:

Copper, New York.....	15.25	15.25	15.25	12.50
Spelter, St. Louis.....	5.97½	5.97½	6.15	4.82½
Lead, New York.....	4.45	4.55	4.45	4.40
Lead, St. Louis.....	4.35	4.35	4.50	4.35
Tin, New York.....	28.75	29.25	29.37½	28.10
Antimony, Hallett, New York...	8.00	8.50	8.50	7.00
Nickel, New York.....	40.00	40.00	40.00	40.00
Tin Plate, Domestic, Bessemer,				
100 lbs., New York.....	3.74	3.74	3.74	3.64

Chicago.

FISHER BUILDING, February 21, 1905.—(By Telegram.)

The all absorbing topic here is the proposed consolidation of Southern Iron interests with the Republic Iron & Steel Company and the ultimate absorption of the consolidation by the United States Steel Corporation. Though the newspapers contain positive statements that this long talked of combination has been practically effected, lacking only a few formalities, officials of the Republic Company and representatives of the Alabama Iron furnaces profess entire ignorance of the whole thing. It is now said that the purchase of 40,000 tons of Southern Iron by a local firm, as noted last week, was made in order to give that firm an assured supply and to protect it against the advance which might follow such consolidation. It is undeniably true that much of the Foundry Iron now being produced by the Southern furnaces and shipped on contracts and orders finds its way into storage yards rather than cupolas, and that many melters are loaded up with Iron enough to last them two to four months, yet the steady increase in actual consumption is expected to absorb this surplus before warm weather comes. The advance of \$2 in Plates and Structural Steel came as a surprise, as it was known that the leading producer was opposed to such advance just now. Sheets are disproportionately low in price as compared with Plates. How soon the leading producers will permit an advance is a matter of conjecture. The big Rail mill at South Chicago has booked 20,000 to 25,000 tons more Standard Section Rails since last report, making about 450,000 tons already booked. Billets are scarce and hard to get even at the \$2 to \$4 premiums asked. Business continues to be active in Iron and Steel Pipe and Boiler Tubes. Old Materials are weaker, with slow demand. The Coke situation is unchanged.

Pig Iron.—While the prices of Pig Iron are unchanged and the situation is quite strong, it is true that many large

users and many jobbing foundries have on hand to-day a surplus of iron, and that a large percentage of the trade is covered with contracts up to the middle of the year. At the same time the consumptive requirements are so much greater than were expected at the time these contracts were made that in the majority of cases the amount of iron contracted for will be insufficient to supply the demand. In some cases, particularly with Malleable foundries, the total tonnage contracted for for delivery in the first quarter has already been delivered and furnaces are being asked to make immediate delivery of second quarter iron. General trading, while light, has been better than during the week previous and there is less talk of concessions below the \$13.50, Birmingham, basis and the \$17.50, Chicago, basis on Northern Iron than has been in evidence at any time since these prices were promulgated. Lake Superior Charcoal Iron is finding new strength and sales have been made this week at \$19, Chicago. No large purchases are in evidence just now, but a number of heavy melters are feeling the market for third quarter and second half deliveries. There are some buyers who evidence their willingness to contract for the balance of this year at current prices, but actual trading in second half iron is limited. We repeat last week's prices without change, as follows:

Lake Superior Charcoal.....	\$18.50 to \$19.00
Northern Coke Foundry, No. 1.....	18.00
Northern Coke Foundry, No. 2.....	17.50
Northern Coke Foundry, No. 3.....	17.00
Northern Scotch, No. 1.....	18.00 to 18.50
Ohio Strong Softeners, No. 1.....	19.30 to 19.80
Ohio Strong Softeners, No. 2.....	18.80 to 19.30
Southern Silvery, 4 to 6 per cent. Silicon.....	18.65 to 19.65
Southern Coke, No. 1.....	17.65 to 17.90
Southern Coke, No. 2.....	17.15 to 17.40
Southern Coke, No. 3.....	16.65 to 16.90
Southern Coke, No. 4.....	16.40 to 16.65
Southern Coke, No. 1 Soft.....	17.65 to 17.90
Southern Coke, No. 2 Soft.....	17.15 to 17.40
Southern Gray Forge.....	16.50 to 16.75
Southern Mottled and White.....	15.90 to 16.15
Malleable Bessemer.....	17.50
Standard Bessemer.....	18.50 to 19.00
Jackson County and Kentucky Silvery, 6 to 8 per cent. Silicon.....	20.30 to 22.30
Jackson County and Kentucky Silvery, 10 per cent. Silicon.....	23.30
Alabama Basic.....	17.15 to 17.40
Virginia Basic.....	17.15 to 17.40

Billets.—The situation is unchanged, and Billet users are having difficulty in securing their steel. About the lowest price obtainable for Forging Billets in this market is \$28, and prices range from there up to \$32 a ton, according to the importance of the buyer to the seller. Bessemer Billets, which are officially quoted at \$21 at Pittsburgh or \$24, Chicago, are unobtainable here at less than \$25 for base sizes, if at that price, and sales are reported as high as \$27 and \$28. Sizes larger than 16 square inches in section up to, but not including, 100 square inches are held at \$2 premium over the base size.

Rails and Track Supplies.—The leading Western mill is booking from 20,000 to 25,000 tons of Standard Section Rails each week. We quote Standard Section Rails in 500-ton lots and greater, \$28, at mill. Light Rails, f.o.b. Milwaukee mill, on about the following basis: 8 and 10 lb. Sections, \$28; 12-lb., \$27; 16-lb., \$26; 20 and 25 lb., \$25; 30 to 45 lb. Sections, \$24; Angle Bars, 1.40c. to 1.50c.; Spikes, 1.70c. to 1.75c.; Track Bolts, 2.40c. to 2.50c., base, with Square Nuts, and 10c. to 15c. higher for Hexagon Nuts. Store prices on Track Supplies range from 15c to 25c. per 100 lbs. above car lot mill prices.

Structural Materials.—The advance of \$2 a ton came as a surprise to this market, as it had been understood that the leading producer opposed any advance, and it was thought that if any change was made it would be no more than \$1 a ton. This puts Structural Steel and Plates back on their traditional \$1.60 basis, which was held for such a long period of time previous to the vicissitudes of 1904. Local trading is rather light, and only two buildings of any magnitude are being figured on—one of 1500 tons and one of 4000 tons. The new prices are as follows: Beams and Channels, 3 to 15 inches, inclusive, 1.76½c.; Angles, 3 to 6 inches, ¼-inch and heavier, 1.76½c.; Angles, larger than 6 inches on one or both legs, 1.86½c.; Beams, larger than 15 inches, 1.86½c.; Tees, 3 inches and over, 1.76½c.; Tees, 3 inches and over, 1.81½c., in addition to the usual extras for cutting to exact lengths, punching, coping, bending or other shop work. Store prices charged by local jobbers are advanced \$2 in line with the mill advance, making the new prices from store either random lengths or cut to lengths, on Angles, Beams and Channels, base sizes, 2c., with 10c. advance for Angles, Beams and Channels larger than the base sizes.

Plates.—The advance of \$2 a ton, made effective on February 16, makes no changes in the classification as to size and causes a corresponding increase in the arbitrary Pacific Coast price. The reason for this advance is not apparent in this market, as Plates have been among the weaker lines of Finished Steel products here. It is therefore concluded that there must be a demand for Plates in other markets sufficiently heavy to warrant the higher prices. New prices on Plates are as follows: Tank quality,

¼-inch and heavier, wider than 14 and up to 100 inches wide inclusive, car lots, Chicago, 1.76½c.; 3-16 inch, 1.86½c.; Nos. 7 and 8 gauge, 1.91½c.; No. 9, 2.01½c.; Sheared and Universal Mill Plates, tank quality, 6¼ to 14 inches inclusive, 10c. below these prices; Flange quality in widths up to 100 inches, 1.86½c., base, for ¼-inch and heavier, with the same advances for lighter weights; Sketch Plates, tank quality, 1.86½c.; Flange quality, 1.96½c. Store prices on Plates are as follows: Tank Plate, ¼-inch and heavier up to 72 inches wide, 2c. to 2.10c.; from 72 to 96 inches wide, 2.10c. to 2.20c.; 3-16-inch up to 60 inches wide, 2.10c. to 2.20c.; 72 inches wide, 2.35c. to 2.45c.; No. 8 up to 60 inches wide, 2.15c. to 2.25c.; Flange quality, 25c. extra.

Sheets.—The condition of the Sheet market is illustrated by the fact that one can buy Red Tank Sheets, 16 gauge, at the same price as Red Tank Plates 3-16 inch thick. The impression prevails that the price of Sheets is being held down arbitrarily by the leading interest, because it has already filled its books with low priced Sheets and is satisfied to hold prices down on the Finished Sheets, being content with the fancy premium prices at which it sells its Sheet Bars and Billets to independent mills. The following are the official minimum prices for car lots and greater at Chicago, delivered from mill; Blue Annealed Sheets, Nos. 9 and 10, 1.86½c.; Nos. 11 and 12, 1.91½c.; Nos. 13 and 14, 1.96½c.; Nos. 15 and 16, 2.06½c.; Box Annealed Sheets, Nos. 18 and 20, 2.21½c.; Nos. 22 and 24, 2.26½c.; Nos. 25 and 26, 2.31½c.; No. 27, 2.36½c.; No. 28, 2.46½c.; No. 29, 2.61½c.; No. 30, 2.71½c. Store prices rule as follows: Blue Annealed Sheets, No. 10, 2.05c. to 2.15c.; No. 12, 2.10c. to 2.20c.; No. 14, 2.20c. to 2.30c.; No. 16, 2.25c. to 2.35c.; Box Annealed Sheets, Nos. 18 and 20, 2.45c. to 2.50c.; Nos. 22 and 24, 2.45c. to 2.55c.; No. 26, 2.50c. to 2.60c.; No. 27, 2.60c. to 2.70c.; No. 28, 2.70c. to 2.80c. Galvanized Sheets from mill are held quite firmly at the following minimum base prices, f.o.b. Chicago, in car lots: No. 16, 2.71½c.; Nos. 18 and 20, 2.86½c.; Nos. 22 and 24, 3.01½c.; No. 26, 3.21½c.; No. 27, 3.41½c.; No. 28, 3.61½c. These prices range from 75, 10 and 5 for No. 16 to 75, 10 and 10 for the heavier gauges. New prices quoted by local jobbers are as follows for small lots from store in base width: Nos. 10, 12 and 14, 3.10c. to 3.20c.; No. 16, 3c. to 3.10c.; Nos. 18 and 20, 3.10c. to 3.20c.; Nos. 22 and 24, 3.2c. to 3.35c.; No. 26, 3.50c. to 3.60c.; No. 27, 3.70c. to 3.80c.; No. 28, 3.95c. to 4.05c.; No. 29, 4.40c. to 4.50c.; No. 30, 4.85c. to 4.95c. Extras for width vary with the gauges.

Bars.—There is no truth in the widely published statements in the newspapers that the Emlen Iron Works has started its Bar mills at East Chicago, though that company has for some time been busy making preparations to resume operations whenever the markets favored. Bar Iron is unchanged at 1.65c., Chicago, base, half extras, in car lots. Soft Steel Bars and Bands are firm at 1.56½c., base, half extras, either Bessemer or Open Hearth. Soft Steel Hoops are strong at 1.71½c. rates, full extras, in car lots; Soft Steel Angles, Channels, Tees and Shapes belonging to the Bar class, 1.66½c., half extras, Chicago, in car lots. Quantity differentials are added to the regular extras for size and for less than car lots, as follows: Less than 2000 lbs. down to 1000 lbs. of a size, 10c. extra; less than 1000 lbs. of a size, 30c. extra. Store prices on Iron Bars are held at 1.85c. to 2c., the bulk of the business being on the basis of 1.90c. Steel Bars and Bands from store are held at 1.75c., base, half extras; Soft Steel Angles and Shapes, 1.85c., half extras; Soft Steel Hoops, 2.10c., full extras. On Soft Steel Bars, Angles, Shapes and Hoops from store 5c. to 10c. higher than these minimum prices is charged for small quantities.

Merchant Steel.—There has been no change either in prices or conditions since last report. We repeat prices without change, as follows: Smooth Finished Machinery Steel, 1.81½c.; Smooth Finished Tire, 1.76½c.; Flat Sleigh Shoe, 1.61½c.; Concave and Convex Sleigh Shoe, 1.76½c.; Cutter Shoe, 2.30c.; Toe Calk Steel, 2.11½c.; Railway Spring, 1.76½c.; Crucible Tool Steel, 6½c. to 8c.; special grades of Tool Steel, 13c. and up. Shafting has been advanced to 50 per cent. discount in car lots and 45 per cent. in less than car lots in base territory.

Merchant Pipe.—Business grows more active as spring approaches and there is every likelihood that all the Pipe mills may be fully occupied throughout the year. The present official discounts in car lots, Chicago, are as follows:

	Steel.		Iron.	
	Black. Per cent.	Galv. Per cent.	Black. Per cent.	Galv. Per cent.
¾ to 1½ inch.....	66.35	59.35	64.35	48.35
¾ to 1½ inch.....	70.35	58.35	66.35	56.35
¾ to 6 inches.....	74.35	54.35	72.85	62.85
7 to 12 inches.....	69.35	54.35	67.85	52.35
Extra strong pipe, ¾ to 1½ inch.....	59.35	47.35	57.35	45.35
¾ to 4 inches.....	66.35	54.35	64.35	52.35
4½ to 8 inches.....	62.35	50.35	60.35	48.35
Double extra strong pipe, ¾ to 8 inches.....	55.35	44.35	53.35	42.35

Boiler Tubes.—The largest buyers of Boiler Tubes just now are the railroads, whose purchases are in the main

2, 2½ and 2½ inch Tubes, usually Charcoal Iron. The contract Boiler shops, however, are showing some improvement in their purchases. The official less than car lot discounts, Chicago, are as follows:

	Steel.	Iron.	Seamless.
1 to 1½ inches.....	42.35	39.35	52.35
1½ to 2¼ inches.....	54.35	39.35	40.35
2½ inches.....	56.35	44.35	43.35
2½ to 5 inches.....	62.35	51.35	{ up to 4 in.
6 to 13 inches.....	54.35	39.35	{ 50.85

Car lots take discounts 2 points higher. Store prices on Boiler Tubes differ, average prices being about as follows for small lots, f.o.b. warehouse:

	Steel.	Iron.	Seamless.
1 to 1½ inches.....	40	35	42½
1½ to 2¼ inches.....	50	35	35
2½ inches.....	52½	35	37½
2½ to 5 inches.....	60	47½	47½
6 inches and larger.....	50	35	..

Cast Iron Pipe.—Nothing out of the ordinary has developed this week, though it is stated that a somewhat larger tonnage than usual in the aggregate is being figured on by Western towns and cities. Prices are firm at \$28.50 a gross ton for 4-inch Water Pipe and \$27.50 for 6-inch and larger, with \$1 extra for Gas Pipe.

Old Materials.—Business is quiet, as the larger buyers are still out of the market, except for special grades and pick ups, and the market continues to be a declining one. The Chicago, Burlington & Quincy promulgated a large list and the Chicago & Eastern Illinois a smaller one. We quote the following prices on car lot business, the higher prices in most cases being the ones at which dealers will sell to large consumers, and the lower prices representing in most instances dealers' buying prices:

Old Iron Rails.....	\$19.50 to \$20.00
Old Steel Rails, 4 feet and over.....	15.00 to 15.25
Old Steel Rails, less than 4 feet.....	14.50 to 15.00
Heavy Relaying Rails, subject to inspection.....	22.50 to 23.00
Heavy Relaying Rails, for side tracks.....	20.00 to 20.50
Old Car Wheels.....	16.25 to 16.50
Heavy Melting Steel Scrap.....	14.00 to 14.50
Frogs, Switches and Guards.....	14.00 to 14.50
Mixed Steel.....	9.50 to 10.00

The following quotations are per net ton:

Iron Fish Plates.....	\$17.50 to \$18.00
Iron Car Axles.....	21.00 to 21.50
Steel Car Axles.....	16.00 to 16.50
No. 1 Railroad Wrought.....	16.50 to 17.00
No. 2 Railroad Wrought.....	15.50 to 16.00
Shafting.....	16.50 to 17.00
No. 1 Dealers' Forge.....	12.50 to 13.00
Wrought Pipes and Flues.....	11.50 to 12.00
No. 1 Cut Busheling.....	10.75 to 11.00
Iron Axle Turnings.....	11.50 to 12.00
Soft Steel Axle Turnings.....	11.50 to 12.00
Machine Shop Turnings.....	11.00 to 11.50
Cast Borings.....	8.75 to 9.00
Mixed Borings, &c.....	8.75 to 9.00
No. 1 Mill.....	9.50 to 9.75
Country Sheet.....	8.00 to 8.50
No. 1 Boilers, cut to Sheets and Rings.....	11.50 to 12.00
No. 1 Cast Scrap.....	13.00 to 13.50
Stove Plate and Light Cast Scrap.....	11.00 to 11.50
Railroad Malleable.....	13.50 to 14.00
Agricultural Malleable.....	12.50 to 13.00

Metals.—A fair current business is being done. Copper is held at 15¼c. to 15½c. for Casting, and 15½c. to 15¾c. for Lake, in car lots, with ¼c. to ½c. higher for small lots. Lead is quoted in 50-ton lots at 4.45c., in car lots at 4.50c. and 5c. to 5¼c. in small lots. Pig Tin at 30c. to 30¼c. in car lots, and 30½c. to 31c. in less than car lots. Spelter is in slow demand, the car lot price being 6.15c. and the small lot price 6¼c. Sheet Zinc is held at \$7.50, base, La Salle, equivalent, after deducting discounts, to \$7.25, Chicago, for car lots of 600-lb. casks, with small lots selling at \$7.50 to \$8. Prices of Old Metals are as follows: Copper Wire, 13¼c.; Heavy, 13c.; Copper Bottoms, 12c.; Copper Clips, 12¼c.; Red Brass, 12c.; Red Brass Borings, 10¾c.; Yellow Brass, Heavy, 9c.; Yellow Brass Borings, 7¾c.; Light Brass, 7¼c.; Lead Pipe, 4¼c.; Tea Lead, 3.85c.; Zinc, 4¼c.; Pewter, No. 1, 19¼c.; Block Tin Pipe, 25c.

Coke.—It has not been an uncommon occurrence recently for local melters to pay from 50c. to \$1 a ton premium for Coke on track, but the railroad deliveries are improving somewhat, and there is now an ample supply of Coke to meet every demand. Prices are unchanged, as follows: First quality 72-hour Foundry is \$3, Connellsville, or \$5.65, Chicago, though there is a lot of Coke from the Connellsville region in the market at \$2.75, while a number of Virginia and West Virginia Cokes are quoted at the basis of \$2.50 to \$2.75 at the ovens, plus the same \$2.65 freight to Chicago. Wise County, Va., operators are asking \$3 to \$3.25 at the ovens, plus \$2.25 freight rate. Milwaukee Solvay is quoted to foundries at \$5.65, Chicago, in car lots.

English cable dispatches state that Germany is buying steel bars in the Birmingham district, and large orders for rolling mill plants and other machinery are being placed with Wolverhampton manufacturers for export to China and India.

Cincinnati.

FIFTH AND MAIN STS., February 21, 1905.—(By Telegraph.)

Pig Iron.—From all indications the market this week presents a stronger appearance than at any time since the opening of the year. The East is reported as responding in a particularly satisfactory manner, while the central territory is gradually becoming more interested in the buying movement. There have been a large number of sales made that, taken as a whole, have amounted to considerable tonnage. In addition to these several large consumers have been in the market for large amounts. This, taken in conjunction with the 40,000 tons sold to one of the large agencies reported in our last week's issue, has no doubt had much to do with the added strength shown to-day. Influenced by this heavy buying the market is on a firmer basis and the position of the seller is greatly strengthened thereby. The furnaces while cautious are said in some instances to be contracting for the third quarter, this delivery, however, calling for an increase over present quotations of 50c. per ton. Foundry business generally is reported as being much improved, with buyers more liberal in demand for shipments. As a general proposition, however, the most of these concerns are covered as far ahead as April, and until after that time will prove small factors in the market. Both Northern and Southern brands are holding firm and prices are well established at the ruling quotations. One of the large melting concerns bought 5000 tons of Southern Iron, principally No. 3 Foundry and Gray Forge, on a \$13.50, Birmingham, basis, contract running into the third quarter, delivery to be made at Louisville. It also expects to close a contract to-day for about 7000 tons for one of its Pittsburgh plants. This contract will be for Northern and Virginia brands and will be for second and third quarter delivery. The leading Pipe interest is said to have secured in the neighborhood of 12,000 tons, a portion of which was Northern resale Iron, at a slight concession, the remainder being Southern grades at schedule prices. The largest inquiry of which we have any record is from a southern Michigan plant for 3000 tons, of which 1000 are to be Southern Silvery and the remainder Northern. Freight rates from Hanging Rock district to Cincinnati, \$1.15, and from Birmingham, \$2.75. We quote, f.o.b. Cincinnati, as follows:

Southern Coke, No. 1.....	\$16.75
Southern Coke, No. 2.....	16.25
Southern Coke, No. 3.....	15.75
Southern Coke, No. 4.....	15.50
Southern Coke, No. 1 Soft.....	16.75
Southern Coke, No. 2 Soft.....	15.25
Southern Coke, Gray Forge.....	14.75 to 15.00
Southern Coke, Mottled.....	20.65 to 21.15
Ohio Silvery, No. 1.....	17.15 to 17.65
Lake Superior Coke, No. 1.....	16.65 to 17.15
Lake Superior Coke, No. 2.....	16.15 to 16.65
Lake Superior Coke, No. 3.....	16.15 to 16.65

Car Wheel and Malleable Iron.

Standard Southern Car Wheel.....	\$18.50 to \$19.00
Lake Superior Car Wheel and Malleable.....	18.00 to 18.50

Coke.—There is considerable delay in receiving shipments, due in a large measure to the inability of the railroads to move the cars. Demand is good and prices firm. We quote the best grades of Connellsville Foundry from \$2.75 to \$3, f.o.b. ovens.

Plates and Bars.—The mills are said to be crowded with orders, and contracts consuming large tonnage cover their order books. Prices remain unchanged, excepting on Structural Shapes and Plates, which have been advanced \$2 per ton. The railroad situation and cold weather have made prompt deliveries entirely out of the question. We quote, f.o.b. Cincinnati, as follows: Iron Bars, in carload lots, 1.65c., with half extras; the same in smaller lots, 1.90c., with full extras; Steel Bars, in carload lots, 1.53c., with half extras; the same in smaller lots, 1.75c., with full extras; Base Angles, 1.73c., in carload lots; Beams and Channels, in carload lots, 1.73c.; Plates, ¼-inch and heavier, 1.73c., in carload lots; in smaller lots, 1.90c.; Sheets, 16-gauge, in carload lots, 2.15c.; smaller lots, 2c.; 14-gauge, in carload lots, 2.05c.; in smaller lots, 2.60c.; Steel Tire, ¾ x 3-16 and heavier, 1.73c., in carload lots.

Old Material.—Business continues good for this class of material, and dealers report the situation as improving. Prices remain the same as last quotations, as far as we have been able to learn. We quote dealers' prices, f.o.b. Cincinnati, as follows: No. 1 Railroad Wrought Scrap, \$17 to \$18 per net ton; No. 1 Cast Scrap, \$14 to \$14.50 per net ton; Iron Rails, \$21.50 to \$22 per gross ton; Steel Rails, rolling mill lengths, \$14.50 to \$15 per gross ton; Relaying Rails, 56-lb. and upward, \$23 per gross ton; Iron Axles, \$21 to \$22 per net ton; Car Wheels, \$16 to \$17 per gross ton; Heavy Melting Scrap, \$14.50 to \$15 per gross ton; Low Phosphorus Scrap, \$17 to \$18 per gross ton.

Mix & Hartel, sheet and bar steel, 132 Purchase street, Boston, announce that they are now Eastern agents of the Vulcan Crucible Steel Company, maker of tool steel, forgings and die blocks.

Philadelphia.

FORREST BUILDING, February 20, 1905.

The Pig Iron market has become very active during the past few days and sales have been extraordinarily heavy. During the past five or six days Steel makers are known to have taken at least 75,000 tons of Basic Iron, and there may have been other lots that are not yet reported. The situation is extremely strong and, while prices have not advanced, recent transactions remove almost all possibilities of a decline. These purchases are significant evidence, however, that consumption during the spring and summer months is bound to be large enough to give full employment to the mills and may possibly lead to higher prices, although that, of course, is for the future to determine. The advance made last week on Plates and Structural Material was in line with what was expected, so that it will make no great difference marketwise, as buyers had covered their requirements as far ahead as it was possible to do so.

Pig Iron.—It is remarkable how steady the market is, considering the extraordinary demand. Prices are absolutely unchanged and, as far as can be seen, makers of Pig Iron are not particularly anxious to establish higher figures. There is no doubt that stability is much to be desired, but it is open to question whether prices can be kept down to present level if the demand keeps up at the rate which is indicated by the immediate outlook. The tonnage of Basic Iron taken since our last report is not less than 70,000 tons, and may reach a still higher figure, while Pipe Iron and other low grades find a ready market for everything available at very firm prices. Foundry grades show no special feature, but are easily placed in large lots at \$17.50 for No. 2 X Foundry and a little more than that for small lots. For the present, therefore, we make no change in quotations, which are about as follows for Philadelphia and nearby deliveries:

No. 1 X Foundry.....	\$17.75 to \$18.00
No. 2 X Foundry.....	17.50 to 17.75
No. 2 Plain.....	16.75 to 17.00
Standard Gray Forge.....	15.75 to 16.25
Ordinary Gray Forge.....	15.25 to 15.50
Basic.....	16.50
Low Phosphorus.....	20.00 to 20.25

Muck Bars.—The market is dull and inactive, sellers asking \$29, f.o.b. their mills, buyers' ideas being about \$28.50, but without leading to business.

Steel.—The demand is improving and sales are easily made at \$28 for ordinary sized lots.

Plates.—The advance of \$2 per ton which was made last week has checked the demand temporarily. Large buyers understood that an advance was coming and therefore placed orders for all the tonnage they would be likely to require during the spring and summer months. This leaves only the usual day to day business open for awhile, but this is likely to be of considerable importance and will no doubt do much to place the trade on a satisfactory basis. The new quotations are as follows:

	Carload. Cents.	Part carload. Cents.
Tank, Bridge and Boat Steel, over 14 inches wide.....	1.73½	1.78½
Tank, Bridge and Boat Steel, rectangular Plates, 14 inches wide and under.....	1.63½	1.68½
Flange or Boiler Steel.....	1.83½	1.88½
Marine, A. B. M. A. and Commercial Fire Box Steel.....	1.93½	1.98½
Still Bottom Steel.....	2.03½	2.08½
Locomotive Fire Box Steel.....	2.23½	2.28½
The above are base prices for ¼-inch and heavier. The following extras apply:		
3-16-inch thick.....	\$0.10	Per 100 pounds extra.
Nos. 7 and 8, B. W. G.....	.15	"
No. 9 B. W. G.....	.25	"
Plates over 100 to 110 inches.....	.05	"
Plates over 110 to 115 inches.....	.10	"
Plates over 115 to 120 inches.....	.15	"
Plates over 120 to 125 inches.....	.25	"
Plates over 125 to 130 inches.....	.50	"
Plates over 130 inches.....	1.00	"

Structural Material.—The same remarks apply as in regard to Plates, new quotations being as follows—viz.: Beams, Channels and Angles, 1.73½c. to 1.85c., according to specifications, and small Angles, 1.65c. to 1.68c.

Bars.—The demand for Bars is very good and mills have a considerable tonnage on their books, which in most cases is being specified very promptly. A meeting of the Eastern Bar Iron Association was held in New York last week, but no change in prices was made, although there were few sellers at the official quotations, a tenth to two-tenths more being realized in most cases, according to the character of the iron. The range therefore may be given as 1.63½c. to 1.83½c. for best Refined Iron and 1.53½c. to 1.60c. for Steel Bars.

Sheets.—Good demand at firm and somewhat higher prices.

Old Material.—There is no pronounced change in the situation, although prices are firmly maintained. In isolated cases and under special circumstances chance lots are picked up at low figures, but ordinarily bids and offers are about as

follows for deliveries in buyers' yards, with no disposition to accept much less than the asking figure:

Old Steel Rails.....	\$18.00 to \$18.25
No. 1 Steel Scrap.....	17.50 to 18.00
Old Steel Axles.....	20.00 to 21.00
Old Iron Axles.....	23.50 to 24.25
Old Iron Rails.....	23.00 to 24.00
Old Car Wheels.....	16.00 to 16.50
Choice Scrap, R. R. No. 1 Wrought.....	21.50 to 22.50
No. 1 Yard Scrap.....	19.50 to 20.50
Machinery Scrap.....	15.50 to 16.00
Low Phosphorus Scrap.....	20.50 to 21.50
Wrought Iron Pipe.....	16.50 to 17.00
No. 1 Forge Fire Scrap.....	16.50 to 17.00
No. 2 Forge Fire Scrap, Ordinary.....	12.00 to 13.00
Wrought Turnings.....	15.00 to 15.50
Axle Turnings, Choice Heavy.....	16.00 to 16.50
Cast Borings.....	11.25 to 11.50
Stove Plates.....	13.50 to 14.00

E. B. Leaf & Co., Philadelphia, who are represented in New England territory by Wm. F. Converse, have been appointed the exclusive sales agents for the Hudson Iron Company's blast furnace located at Secaucus, N. J.

Birmingham.

BIRMINGHAM, ALA., February 20, 1905.

The increased activity noted in last letter held during the week just closed, and there were several concluded transactions for round lots which at the time our last letter was made were under treaty. Their final ending has given a better tone to the market, which, though not quotably higher as yet, is stiffening in price. Some who were willing to sell on the basis of \$13.50 for No. 2 Foundry are now asking \$13.75 and bar round lots. The amount that could be had at \$13.50 has practically been sold, though it is possible that here and there an odd lot could yet be had. But generally speaking \$13.75 is rock bottom, basis of No. 2 Foundry. At that price 800 tons was sold in one order Saturday, and your correspondent can find none that is being offered at any less price. Some interests are very firm in their views and nothing less than \$14 is any temptation to them to sell. Their sincerity has been proved, for they have declined the opportunity over and over again to sell for less. The sales the past week were mainly to large buyers, and while there is no positive evidence upon that point, it is generally accepted that \$13.50 for No. 2 Foundry was the basis of the bulk of the sales.

The Pipe companies were in strong evidence as buyers and their purchases were the mainstay of the market. It is impossible to ascertain the amount taken by each interest, but it can be stated that the major part of the buying was for their account. Out of all the sales made there was but one that was not taken for melting. Besides the sales made to the various Pipe interests there was quite a demand in a moderate way from medium and small buyers. They came in with orders ranging from 500 tons down to car lots, and the price they paid was \$13.75 to \$14. As to delivery, it is current in the trade that some of them were stretched to include the third quarter. But those credited with the sales will not admit they sold for delivery beyond the second quarter except in special cases, and then for only limited amounts. Some effort has been made to ascertain the total of the sales for the week without success. It is in evidence that some sales made by other districts have been credited to this district.

It is yet a difficult matter to get any activity into the selling for the third quarter. The sellers want some advance over current value for that delivery, and buyers are coy about granting it. When one side is willing the other talks weather. The estimated sales during the past ten days are placed by some at 100,000 tons. To your correspondent this looks extravagant. But they will certainly amount to 60,000 tons.

The various grades were all represented in the sales. No. 2 Foundry sold at \$13.50, \$13.75 and \$14, according to circumstances. No. 1 Foundry and Soft each sold at \$14.50, but only in limited amount and for nearby delivery. No. 3 Foundry sold at \$13.25, and some at \$13. No. 4 Foundry sold in special instances at \$13, and Gray Forge at both \$12.75 and \$13. There is as yet no uniformity in prices. Each interest runs its own market. We are not yet out of the woods as regards the smooth working of the furnaces. Coke continues in urgent demand, and at the moment is anything but easy to obtain. There has been a let up on production in some instances on account of the short supply of Coke, and this drawback will last until we get settled weather. This is a *déte noire* just now to all the furnace interests, and it is just as difficult to borrow Coke as to buy it.

There has been almost as much difficulty to get Coal as to get Coke. The heavy rains we have had flooded several mines, and work in them was out of the question. The elements were against production, and nothing that human endeavor could devise helped the situation. Right here, within a stone's throw of the coal mines, buyers had to pay \$5 per ton for domestic use, and then wait their turn for delivery. This statement illustrates the condition forced by the weather.

er here. The fire at the Sumter mines is still raging, and reports concerning the condition of affairs there are conflicting. Officials of the Tennessee Company state that they are gradually getting the fire under control. But it will take some time to restore affairs to their normal condition.

Rumors are still rife concerning combinations and mergers, and the absence of leading officials, who have gone to New York, gives color to the report that something is brewing. No one here can give you any definite information of the progress of the negotiations that are being conducted in New York.

Pittsburgh.

PARK BUILDING, February 21, 1905.—(By Telegraph.)

Pig Iron.—There is a distinct improvement in the Pig Iron market, inquiries being more plentiful, and prices are firmer. This is due in part to the figures recently printed showing that, notwithstanding the enormous production, the Iron is going into actual consumption and no stocks are being piled. It is practically certain that the United States Steel Corporation will buy additional Iron for Homestead and Lorain, while another large Steel company is in the market for fair sized tonnage. Bessemer and Basic Iron are held at \$15.50, Valley furnace, but some Iron is being sold by dealers as low as \$15.25. The Standard Sanitary Mfg. Company has bought Northern Foundry for its New Brighton and Allegheny works at a shade under \$16, Valley furnace, for No. 2. The inquiry of the Standard Sanitary Company was for 13,000 tons of Northern Iron and it has bought 6000 to 7000 tons, while the balance will likely be closed to-day. Nearly all the furnaces quoted \$16, Valley, on this Iron and refused to go lower. There is not much doing in Forge Iron, as leading consumers are pretty well covered. We quote Northern brands at \$15.15, Valley furnace, equal to \$16, Pittsburgh.

Steel.—There is great scarcity of Billets and Sheet and Tin Bars for prompt shipment and they easily command \$3 to \$4 a ton over official prices. It is evident that the leading Steel interests are oversold, as they are all very much behind in deliveries. We quote Bessemer and Open Hearth Billets, ordinary carbons, at \$23.50 to \$24, maker's mill. Sheet and Tin Bars in long lengths for February and March delivery are \$25.25 to \$25.50, maker's mill. We note sales of about 8000 tons of long Sheet Bars at these prices.

(By Mail.)

So far this month the United States Steel Corporation, through the Carnegie Steel Company, has bought 30,000 tons of Bessemer Iron, mostly for shipment to Homestead and Lorain, a purchase of 5000 tons of Bessemer last week from the Bessemer Pig Iron Association being for shipment to Lorain. It is figured out that the Steel Corporation will have to buy more Bessemer Iron for prompt delivery, as it is short of metal at all its plants and in addition three of the Edgar Thomson furnaces are still down for lack of Coke. Negotiations may be opened this week for the purchase of 25,000 to 50,000 tons. This Iron if purchased will probably be divided between the Pig Iron Association and W. P. Snyder & Co. The Standard Sanitary Mfg. Company of this city came in the market last week for 21,000 tons of Pig Iron—8000 tons for its Louisville works and 13,000 tons for the New Brighton and Allegheny works. The 8000 tons for the Louisville works has been bought on the basis of \$13.50 for No. 2 and \$12.50 for Gray Forge, f.o.b. Birmingham. A part of the 13,000 tons for the Allegheny and New Brighton works has been bought at a shade under \$16, Valley furnace, for Northern No. 2. Most of the furnaces quoted \$16 at furnace, but one or two sellers shaded this price and took the business. There is not much inquiry for Gray Forge, most leading consumers having bought heavily some time ago and are thus covered for this and next month. Northern brands of Gray Forge are held at about \$15.15, Valley, or \$16, Pittsburgh.

We note a continued active demand for Steel, and Billets or Sheet Bars for prompt delivery command heavy premiums over official prices. Bessemer and Open Hearth Billets, ordinary carbons, have sold for prompt delivery from \$23.50 to \$24, while Sheet Bars have sold at \$25.25 to \$25.50, maker's mill. We note sales of 5000 to 6000 tons of Sheet Bars at these prices. There probably never was a time in the history of the Steel trade when the demand for Billets and Sheet Bars was as heavy as it is at

present. The Donora works of the Carnegie Steel Company, which contain 12 50-ton Open Hearth furnaces, is expected to be on full this week. This plant will turn out from 1000 to 1200 tons of Open Hearth Billets per day, which will be used in the Donora Rod and Wire mills and will allow this much Steel to be diverted from other plants of the Carnegie Steel Company to its own finishing mills.

The advance of \$2 a ton made last week in prices of Plates and Structural Steel was rather a surprise to the trade here. It is understood that parties who had options on a considerable tonnage of Structural Steel will be allowed a certain time to exercise these at the old price. The trade is expecting an announcement any day from the leading interest of an advance in prices of Sheets and Tin Plate, and it may come this week. The tonnage in Finished Iron and Steel is fairly active, while specifications on heavy contracts placed some time ago before prices were advanced are coming in very freely and give the mills a full amount of work.

Ferromanganese.—We continue to quote 80 per cent. domestic Ferro at \$45, delivered, for large lots. The local producer is turning out a heavy tonnage of Ferro, most of which it is using in its own Steel plants, but a part of which is sold in the open market.

Rods.—The demand for Rods is only fair, but the market is very firm on account of the high prices and scarcity of Steel Billets. We quote Bessemer and Open Hearth Rods at \$31 to \$32, Pittsburgh.

Skelp.—Some good sized inquiries for Steel Skelp are in the market, and prices on this material have advanced, due to the high prices and scarcity of Steel Billets. We quote Grooved Iron Skelp, ordinary widths and gauges, at 1.65c. to 1.70c.; Sheared, 1.75c. to 1.80c.; Grooved Steel Skelp, 1.60c. to 1.65c., and Sheared, 1.65c. to 1.70c. For very narrow or very wide sizes the mills ask higher prices.

Muck Bar.—The market is rather quiet, and prices are a trifle lower. We quote best grades of Muck Bar, made from all Pig Iron, at \$28 to \$28.25, Pittsburgh.

Steel Rails.—No large orders have been placed since our last report. There is some inquiry for Rails for export to both Russia and Japan. We quote Standard Sections at \$28, at mill. Light Rails continue quiet and range in price from \$23.50 to \$26, depending on weight.

Structural Material.—At the meeting of the Beam Association last week held in New York, prices were advanced \$2 a ton, effective at once. Options were out on a good deal of work, and buyers will be allowed a certain time to close these at the old prices. No large contracts have recently been placed in this district. We now quote: Beams and Channels, up to 15-inch, 1.60c.; over 15-inch, 1.70c.; Angles, 3 x 2 x ¼ inch thick up to 6 x 6 inches, 1.60c.; Angles, 8 x 8 and 7 x 3½ inches, 1.70c.; Zees, 3-inch and larger, 1.60c.; Tees, 3-inch and larger, 1.65c. Under the Steel Bar card Angles, Channels and Tees under 3-inch are 1.60c., base, for Bessemer and 1.65c., base, for Open Hearth, subject to half extras on the Standard Steel Bar Card.

Plates.—The Plate mills regard present tonnage so satisfactory and the outlook for the future so good that they decided to advance prices \$2 a ton at the meeting held in New York last week. Orders have been coming in very well for some time and the mills have quite a large amount of work on their books. The Boiler shops are buying more freely and placed heavy contracts prior to the advance. The Steel car trade is also taking a very large tonnage of Plates. We have advanced prices \$2 and now quote: Tank Plate, ¼-inch thick, 6¼ to 14 inches wide, 1.50c., base; over 14 inches wide and up to 100 inches in width, 1.60c., base, at mill, Pittsburgh. Extras over the above prices are as follows:

	Extra per 100 pounds.
Gauges lighter than ¼-inch to and including 3-16-inch Plates on thin edges.....	\$0.10
Gauges No. 7 and No. 8.....	.15
Gauge No. 9.....	.25
Plates over 100 to 110 inches.....	.05
Plates over 110 to 115 inches.....	.10
Plates over 115 to 120 inches.....	.15
Plates over 120 to 125 inches.....	.25
Plates over 125 to 130 inches.....	.50
Plates over 130 inches.....	1.00
All sketches (excepting straight taper Plates varying not more than 4 inches in width at ends, narrowest end being not less than 30 inches)...	.10
Complete Circles.....	.20
Boiler and Flange Steel Plates.....	.10
Marine, "A. B. M. A.," and ordinary Fire Box Steel Plates.....	.20
Still Bottom Steel.....	.30
Locomotive Fire Box Steel.....	.50
Shell Grade of Steel is abandoned.	

TERMS.—Net cash 30 days. For anticipated payments a maximum discount may be allowed at the rate of 6 per cent. per annum and for a longer time than 30 days interest shall be charged at the same rate per annum. Invoices paid within ten days from date thereof, discount of ¼ of 1 per cent. is allowable. Pacific Coast base, 1.40c. f.o.b. Pittsburgh, with all rail tariff rate of freight to destination added, no reduction for rectangular shapes 14 inches wide down to 6 inches of Tank, Ship or Bridge quality.

Sheets.—The demand for both Black and Galvanized Sheets is quite heavy, buyers placing liberal orders in the belief that prices on Black Sheets may be advanced at any time. Specifications on contracts are coming in very freely and all the leading Sheet mills are full of work. The mills that buy Sheet Bars in the open market and that have sliding scale contracts with the Steel mills are having much trouble in getting deliveries of Sheet Bars, and in some cases have to go out in the open market and pay above \$25 for Bars for prompt shipment. Prices on Sheets are very firm and we quote: No. 24, box annealed, one pass through cold rolls, 2.05c.; No. 26, 2.15c.; No. 27, 2.20c., and No. 28, 2.30c. We quote Galvanized Sheets as follows: Nos. 22 and 24, 2.85c., Nos. 25 and 26, 3.05c.; No. 27, 3.23c.; No. 28, 3.45c. We quote No. 28 Gauge Painted Roofing Sheets at \$1.65 per square, and Galvanized Roofing Sheets, No. 28 Gauge, at \$2.95 for 2½-inch corrugation. Jobbers charge the usual advances over above prices for small lots from store.

Iron and Steel Bars.—A good deal of tonnage in both Iron and Steel Bars is being placed and these new orders, with specifications on old contracts, give the mills a full amount of work. There is some talk of an early advance in Steel Bars and a meeting of the Steel Bar Association may be held this week to consider an advance in prices. We quote Common Iron Bars at 1.65c. to 1.70c. and Refined Iron Bars 1.75c. to 1.80c., f.o.b. Pittsburgh. We quote Bessemer and Open Hearth Steel Bars at 1.40c., base, in carloads and larger lots, with the usual advances for smaller lots.

Hoops and Bands.—We continue to quote Steel Hoops at 1.55c. and Bands at 1.40c., extras on the latter as per Steel card. The new demand for both Hoops and Bands is quiet, but buyers are specifying freely on contracts placed some time ago when prices were lower than at present.

Tin Plate.—The demand continues exceedingly heavy, the mills being under full pressure and shipping their product as fast as made. The urgent demand, with the high prices of Steel, leads to the belief that an early advance in price of Tin Plate is certain and is expected to be about 15c. per box. We quote 100-lb. Cokes at \$3.50 net, f.o.b. Pittsburgh, terms 30 days, or 2 per cent. off for cash in 10 days.

Merchant Pipe.—The demand continues quite heavy and the leading mills are filled up with tonnage for some time ahead. The National Tube Company is gradually starting its Lorain plant, which will turn out all sizes up to 30 inches in diameter. The entire plant is expected to be running by July 1 and will turn out 1000 tons a day or more of Pipe when in full operation. Several large contracts for Line Pipe are in the market, but have not yet been closed. The tone of the market is firm, discounts to consumers in carloads being as follows:

	Steel.		Iron.	
	Black.	Galv.	Black.	Galv.
	Per cent.	Per cent.	Per cent.	Per cent.
1½ and 1¼ inch.....	68	52	66	50
¾ and ½ inch.....	72	60	70	58
¾ to 6 inches.....	76	66	74½	64½
7 to 12 inches.....	71	56	69½	54
Extra strong, plain ends, ¾ to 1 inch.....	61	49	59	47
1½ to 4 inches.....	68	56	66	54
4½ to 8 inches.....	64	52	62	50
Double extra strong, plain ends, ¾ to 8 inches.....	57	46	55	44

Boiler Tubes.—The demand is active, the mills having all the tonnage they can take care of and in some cases are behind in deliveries. Discounts in carloads are as follows:

	Boiler Tubes.	Iron.	Steel.
1 to 1¼ inches.....	43	43	46
1½ to 2¼ inches.....	43	43	58
2½ inches.....	48	48	60
2¾ to 5 inches.....	55	55	66
6 to 13 inches.....	43	43	58

Merchant Steel.—A fair amount of new tonnage is being placed and specifications on contracts are coming in a little better. We quote: Tire Steel, 1.60c. to 1.65c.; Smooth Finished Machinery Steel, 1.60c.; Open Hearth Spring Steel, 2c. to 2.10c.; Toe Calk, 1.90c. to 2c.; Cold Rolled Shafting is 50 per cent. off in carloads and 45 per cent. in less than carloads, delivered in base territory.

Railroad Spikes.—The mills report a very active demand and there is some talk of an early advance in prices. We quote at \$1.65 to \$1.70 per 100 lbs. in carloads and \$1.75 in less than carloads, f.o.b. cars, maker's mill.

Spelter.—The market is very quiet and prices have eased off further. We quote prime grades of Western Spelter for spot delivery at 5.95c., St. Louis, equal to 6.07½c., Pittsburgh.

Coke.—The demand for Furnace and Foundry Coke continues active. It is stated the Lackawanna Steel Company has bought a large tonnage of Coke for shipment to its blast furnaces at Lebanon, Pa., which are to be started at an early date. It is claimed that the deal for the purchase of the Hecla Coke Company by the H. C. Frick Coke Company has

been practically closed, and that the Frick Coke Company is negotiating for other Coke properties in the Connellsville region. More than 1000 new ovens are being built in the Upper and Lower Connellsville regions and will be ready for operation in the early summer. Out of a total of more than 29,000 ovens in the two Connellsville regions only about 1650 are idle, output last week having been about 330,000 tons. Prompt Furnace Coke is held at \$2.50 and Foundry at \$2.75 a ton at oven. Where buyers will agree to furnish cars Furnace Coke can be had at \$2 a ton at oven. A great deal of Coke is piled up in the Connellsville region awaiting cars for shipment.

Iron and Steel Scrap.—The long waiting game between consumers and dealers of Scrap is having the effect of weakening prices, which are lower this week than for some time. We quote: Heavy Melting Scrap, \$15.50 to \$16; Bundled Sheet Scrap, \$14.50; No. 1 Wrought Scrap, \$19.50; Wrought Iron Turnings, \$13.50 to \$13.75; Cast Iron Borings, \$10.25 to \$10.50; Steel Rails, short pieces, \$15.75 to \$16; No. 1 Cast Scrap, \$15.25 to \$15.50; Iron Car Axles, \$22 to \$23, all in gross tons, f.o.b. Pittsburgh. On a firm offer and for prompt shipment some dealers might slightly shade above prices.

OBITUARY.

LUIZ EVARESTO DE COSTA CEBRAL, 60 years old, a manufacturer of machinery of Rio de Janeiro, died suddenly February 16 at the Hotel Breslin, New York. He was considered one of the wealthiest men in South America, having agencies all over the world, and was on a protracted visit in this country. The climatic changes brought on heart and lung trouble.

W. J. CHISHOLM, assistant superintendent of the Chisholm Shovel Works, Cleveland, Ohio, died February 11, after an illness of two years. He was 46 years of age, and is survived by a widow.

CHARLES J. DONNELLY, son of John Donnelly, the inventor and first manufacturer of lucifer matches, and himself inventor of a machine by which matches are made now, died February 16, in Philadelphia, aged 58 years. He had been an invalid nearly 30 years, as the result of phosphorus poisoning which he contracted while in the match business.

GEORGE BINGHAM of Pittsburgh, aged 81 years, died February 18, after a short illness. He was one of the pioneer manufacturers of western Pennsylvania. Until a year ago Mr. Bingham was president of the Phoenix Galvanizing Company. He leaves one daughter, Mrs. Wallace T. Bache of New York.

NORTON P. OTIS, Yonkers, N. Y., chairman of the Board of Directors of the Otis Elevator Company, former Mayor of Yonkers and Representative in Congress of the Nineteenth District of New York, died of cancer February 20. Mr. Otis had been ailing for a year and last summer he underwent an operation. He was born March 18, 1840, at Halifax, Vt. He was educated in the public schools of Albany and Yonkers. At the age of 18 he entered his father's elevator works and was subsequently connected with the business in various capacities, being successively treasurer, vice-president and president, and finally chairman of the Board of Directors.

Labor Notes.

Corrigan, McKinney & Co., Cleveland, Ohio, operating Scottsdale Furnace, at Scottsdale, Pa., have voluntarily advanced labor at this furnace 10 cents per day, effective from February 16.

The Amalgamated Association has ordered a lockout at the Wheeling and Martins Ferry tin plate plants of the Whitaker-Glessner Company. The dispute is in regard to the rollers' scale, and both these plants are now idle. Unless the trouble is adjusted in a short time it is probable the company will attempt to operate its mills on a nonunion basis.

A lodge of the Amalgamated Association has been organized among the employees of the tin plate plant of Follansbee Brothers Company, at Follansbee, near Wheeling, W. Va.

Metal Market.

NEW YORK, February 21, 1905.

Pig Tin.—The scarcity of supplies, which has characterized the market during the last few weeks, is at an end and the higher prices which ruled throughout the scarcity have been broken. A sharp decline has set in, which has brought the prices down $\frac{1}{2}$ c. per lb., and as there is ample quantity of the metal afloat, which promises to arrive shortly, lower prices are looked for. Business at the moment is very quiet, as purchasers are naturally awaiting further developments. At this writing spot is 28.75c. to 29c., while the deliveries for the balance of this month are quoted at 28.75c. to 28.87 $\frac{1}{2}$ c. March is still lower, quoting 28.60c. to 28.75c., and April deliveries can be obtained at 28.45c. to 28.55c. The London market has also declined very materially, being quoted to-day at £130 15s. for spot and £130 5s. for futures. The arrivals thus far this month aggregate 3490 tons, while about 4910 tons are now afloat.

Copper.—The market has again lapsed into dullness, with prices nominally unchanged. Consumers are buying only from hand to mouth, according to their absolute needs. Considerable comment is heard from the fact that exports to Europe are decreasing. The market is quoted at 15.25c. to 15.37 $\frac{1}{2}$ c. for Lake, 15.12 $\frac{1}{2}$ c. to 15.25c. for Electrolytic and 14.87 $\frac{1}{2}$ c. to 15c. for Casting. The London market has advanced a shade over last week, being quoted to-day £68 6s. 3d. for spot, £68 13s. 9d. for futures and £71 15s. for Best Selected. The total exports thus far this month amount to 11,575 tons, of which about 5000 tons were shipped to China, leaving only 6575 tons as exports to Europe. This week's exports to China amount to about 500 tons.

Pig Lead.—There is nothing of importance to note in the Pig Lead market, conditions remaining practically the same as last reported. Spot Lead is quoted at 4.55c. to 4.60c., and St. Louis telegraphs 4.35c. The American Smelting & Refining Company still quotes "shipment" Lead on a basis of 4.45c. for Desilverized in 50-ton lots. London prices show a slight advance as compared with last week, to-day's quotation being £12 10s.

Spelter.—There is very little doing in Spelter, and the market may be characterized as easy. Spot is nominally held at 6.10c. to 6.20c. The St. Louis market is unchanged from last week, being quoted at 5.97 $\frac{1}{2}$ c. London cables are lower at £24 10s.

Antimony.—The market is easy and a shade lower in all grades. Cookson's is now quoted 8c. to 8.25c., Hallett's is 7.87 $\frac{1}{2}$ c. to 8.87 $\frac{1}{2}$ c., and other grades are quoted from 7c. to 7.75c.

Quicksilver.—The market is unchanged, flasks of 75 lbs. being quoted at \$40. The London market is quoted at £7 12s. 6d.

Nickel.—The tone of the market is quiet and prices are practically without change, large lots being quoted at 40c. to 45c. and smaller quantities at 50c. to 60c.

Tin Plate.—The situation remains much the same as last week. Prices are firmly held, the American Sheet & Tin Plate Company quoting on a basis of \$3.74 a box for 14 x 20, 100-lb. Coke Plates, f.o.b. New York, or \$3.55, f.o.b. Pittsburgh.

New York.

NEW YORK, February 21, 1905.

Pig Iron.—Quite a large tonnage has been placed in this market, the sales including about 5200 tons for a leading pump manufacturing concern, a round lot for an electrical company and a lot of 1000 tons for a manufacturer of plumbing materials. An important inquiry now in the market is for about 21,000 tons of Pig Iron for the castings of another tunnel under the Hudson River. We quote: Northern Iron, tidewater, \$18 to \$18.25 for No. 1 Foundry, \$17.50 to \$17.75 for No. 2 X Foundry, \$16.75 to \$17.25 for No. 2 Plain and \$16 to \$16.25 for Gray Forge. Alabama and Tennessee Irons are quoted \$17.50 to \$17.75 for No. 1 Foundry and \$17.25 to \$17.50 for No. 2 Foundry.

Steel Rails.—Eastern mills do not report any business of magnitude. We continue to quote \$28 for Standard Rails at mill.

Cast Iron Pipe.—The Boston letting of 2000 net tons will be made to-day. Worcester, Mass., will contract for about 800 tons on Thursday. These are the largest deals in sight at present in this territory, but the inquiry is increasing and the prospects are considered promising for spring business. Prices are continued on the basis of \$26.50 to \$27 per net ton for carload lots of 6 and 8 inch at tidewater, but an advance is likely if Pig Iron maintains its strength.

Finished Iron and Steel.—While the Structural trade is quiet, the sentiment is decidedly hopeful, based on projects

which are considered certain to lead to contracts. Another week is likely to bring out some developments, particularly in the bridge line. Other branches of Finished Iron and Steel are without any special feature, except that prices are higher. Shapes and Plates are up \$2 per ton, while Bar Iron can by no means be purchased at old figures. The Eastern Bar Iron manufacturers met here last week and reaffirmed the price of 1.50c., Pittsburgh, equal to 1.64 $\frac{1}{2}$ c., New York, but this is simply nominal. Actual rates are \$2 to \$3 per ton higher. Quotations at tidewater are as follows: Beams, Channels, Angles and Zees, 1.74 $\frac{1}{2}$ c. to 1.84 $\frac{1}{2}$ c.; Tees, 1.79 $\frac{1}{2}$ c. to 1.89 $\frac{1}{2}$ c.; Bulbs, Angles and Deck Beams, 1.84 $\frac{1}{2}$ c. to 1.94 $\frac{1}{2}$ c.; Sheared Tank Plates, 1.74 $\frac{1}{2}$ c. to 1.84 $\frac{1}{2}$ c.; Flange Plates, 1.84 $\frac{1}{2}$ c. to 1.94 $\frac{1}{2}$ c.; Marine, 1.94 $\frac{1}{2}$ c. to 2.04 $\frac{1}{2}$ c.; Fire Box, 1.94 $\frac{1}{2}$ c. to 2.50c., according to specifications; Refined Bar Iron, 1.74 $\frac{1}{2}$ c. to 1.84 $\frac{1}{2}$ c.; Soft Steel Bars, 1.54 $\frac{1}{2}$ c. to 1.64 $\frac{1}{2}$ c.

Old Material.—The situation is somewhat perplexing. Stocks are low in dealers' hands, and they are also reported to be decidedly depleted in the yards of consumers, yet some of the largest dealers give it as their experience that the past few days have demonstrated a decided disinclination on the part of buyers to take Rolling Mill stock and Steel Scrap at the prices quoted last week. On the other hand, very prominent dealers, whose operations cover all sections of the East, offer convincing evidence of the consummation of quite important sales, which include a lot of 300 tons of Wrought Pipe and another lot of 1500 tons of Busheling Scrap at full prices, with a considerable quantity of Cast Borings for shipment to eastern Pennsylvania at an even higher price than quoted last week. Inquiries from Eastern Steel works are in the market for Steel Scrap. Old Iron Rails are very scarce, but consumers will not take them at fancy figures. All parties agree that Cast Scrap is in strong demand. One sale of 3000 tons is reported. Quotations per gross ton, New York and vicinity, are approximately as follows:

Old Iron Rails.....	\$22.00 to \$22.50
Old Steel Rails, rerolling lengths.....	17.00 to 18.00
Old Steel Rails, short pieces.....	16.00 to 16.50
Relaying Rails.....	20.00 to 21.00
Old Car Wheels.....	17.50 to 18.50
Old Iron Car Axles.....	22.00 to 23.00
Old Steel Car Axles.....	19.00 to 20.00
Heavy Melting Steel Scrap.....	16.00 to 16.50
No. 1 Railroad Wrought Scrap.....	20.00 to 20.50
No. 1 Yard Wrought Scrap.....	18.00 to 19.00
Iron Track Scrap.....	17.50 to 18.00
Wrought Pipe.....	14.50 to 15.50
Ordinary Light Iron.....	11.00 to 11.50
Cast Borings.....	9.00 to 10.00
Wrought Turnings.....	13.50 to 14.00
No. 1 Machinery Cast.....	16.00 to 16.50
Stove Plate.....	13.50 to 14.00

New Blast Furnace at Cadillac, Mich.—Plans and specifications are being prepared and work of construction will be started as soon as the frost is out of the ground on a new charcoal iron blast furnace which is to be erected at Cadillac, Mich., by the Mitchell-Diggins Iron Company, organized with a capital stock of from \$200,000 to \$250,000. The new furnace will have a daily capacity of 100 to 125 tons of pig iron and will be under the management of Joseph C. Ford of Fruitport, Mich., who has long been in charge of the furnace of the Spring Lake Iron Company. The new processes for obtaining alcohol and acetate of lime from wood have led to the erection of two large plants at Cadillac, which produce daily about 12,000 bushels of charcoal; and it is to utilize this supply of charcoal that the furnace will be built, the ores coming from the Marquette, Mesaba and Gogebic mines, the same as are used in the Fruitport Furnace. The stack will cost at least \$150,000 and will probably be constructed under the direction of Julian Kennedy of Pittsburgh. The company has not yet placed orders for equipment and informs us that it will be in the market within the next 60 days for the necessary machinery, engines, boilers, pumps, &c. William W. Mitchell, president of the Mitchell Brothers Company, Cadillac, Mich., will be at the head of the new company, and the other stockholders will be D. F. Diggins, F. J. Cobbs and Edward Fitzgerald of Cadillac, W. L. Loutit of Spring Lake, J. C. Ford of Fruitport and I. M. Bean of Milwaukee.

The Upper House of the Prussian Diet has adopted the bill for State purchase of the Hibernia coal mines. The Minister of Commerce announced that he and the Finance Minister were thoroughly opposed to any general nationalization of coal mines, but that the nationalization of the Hibernia mines was necessary in order to give the Government power over the coal syndicate.

Steel for Automobiles.

BY THOMAS J. FAY.*

In the development of motor cars it has been found that the materials commonly obtainable in the market are not satisfactory in many respects, for the reason that the requirements are of a very special nature. In bridge construction the stresses in the various members may be estimated with great accuracy. In such work, then, it is allowable to employ steel of the quality obtainable in structural shapes, and with a liberal factor of safety bridge construction in the hands of experienced engineers is an exact science. Motor car engineers are slowly realizing that a motor car cannot be treated in the same way as a bridge. The problem is entirely different, for in a bridge inert steel is subjected to load stresses only, while in an automobile there are in addition to the load stresses shock stresses due to the impact of the moving machine with stones or other irregularities in the road. Bad road conditions are particularly prevalent in this country, which is one reason why foreign motor cars have not been as successful here as at home.

Among the improvements to motor cars from time to time are many that do not show on the surface. In fact, the most important are the most difficult to see, such as improvements in the quality of the metal employed. It is no longer the practice to purchase the best metal the market affords, but to purchase heats of special metal possessing properties not usual to the run of products to be had from stock. In some cases the metal is the product of foreign mills, simply because American mills have overlooked the motor car trade or do not care to experiment with the grades of metal that are most desirable in motor cars.

The two most prominent steels now used are nickel steel and chrome-nickel steel. The nickel steel products are to some extent made in America and for certain work are considered extremely valuable. Table I herewith shows the properties of a valuable sample of this steel as determined by test and suggests its particular usefulness:

Table I.—Special Nickel Steel.

Chemical Composition.			
Per cent.		Per cent.	
Carbon	0.30 to 0.25	Sulphur	0.3 to 0.025
Nickel	3.5 to 3.4	Phosphorus	0.04 to 0.032
Silicon	0.10 to 0.08	Manganese	0.17 to 0.14
Physical Properties.			
Ultimate tensile strength, pounds per square inch,			
119,000 to 102,226			
Yield point in pounds per square inch.....			
86,000 to 75,000			
Elongation, per cent.....			
16.1 to 14.5			
Reduction of area at yield point, per cent.....			
73.4 to 64			
Test specimen, 5.905 inches long. Good metal for axles and knuckles.			

The elastic limit of this metal is very favorable and as compared with common steel it is superior, for the reason that when subjected to alternate stresses it is not subjected to sudden rupture. In this metal the grain is close, the fracture clean and cracks do not follow up. In the use of this metal the secret of success lies in the treatment. As it comes from the mill, even when pickled and annealed, it is not in fit shape for use. After treatment in a suitable way the elastic limit is increased, the grain is made even closer, and still it cuts easier than 20-carbon machine steel.

Chrome-nickel steel possesses many of the good qualities of nickel steel and has its own individuality besides. For certain work chrome-nickel steel is superior to nickel steel and its physical properties are good in almost every way, as the test Table II shows:

Table II.—Chrome-Nickel Steel.

Chemical Composition.			
Per cent.		Per cent.	
Carbon	0.50 to 0.40	Sulphur	0.03 to 0.156
Nickel	1.4 to 1.33	Phosphorus	0.04 to 0.035
Chromium	3.26 to 3.05	Manganese	0.19 to 0.158
Silicon	0.12 to 0.04		
Physical Properties.			
Ultimate tensile strength, pounds per square inch,			
162,300 to 114,600			
Yield point, pounds per square inch.....			
124,600 to 89,000			
Elongation, per cent.....			
10.2 to 7.3			
Reduction of area at yield point, per cent.....			
61.3 to 42			
Test specimen, 0.590 inch in diameter. Suitable for use in gears and pinions.			

* Engineer for the Smith & Mabley Mfg. Company, New York City.

This metal may be given various characteristics by varying the chromium, nickel and carbon with suitable changes in silicon, phosphorus and manganese. The use to which this metal is put in the car depends upon the nature of the service, and the proportions of the components in the make up of the metal are varied to suit the service expected of them. The future holds still further improvements, such as, for illustration, the adaptation of tungsten chrome-nickel steel, a metal that even in its experimental stage suggests wonderful possibilities.

Carbon steel is not being abandoned by any means, for in certain specific classes of service it is the equal of any steel. But it is not the ordinary market product known as machine steel. In some work the carbon component is reduced below 0.08 and in other work it reaches over 100 points, whereas machine steel as marketed usually contains carbon ranging from 15 to 45 points and rather more phosphorus than would be desirable in motor car metals. In selecting metals for motor cars the ultimate tensile strength and even the elastic limit are of secondary importance compared with the ability to resist fatigue under the alternate rapid series of hammerlike blows to which it is subjected. Whether or not the metal will weld is unimportant, for in a good motor car there are no welds.

Trade Publications.

Water Wheels.—The Flitz Water Wheel Company, Hanover, Pa. Catalogue No. 6, illustrating and describing the I-X-L steel overshot water wheels. Photographs are reproduced showing typical installations of the various types of these wheels made and line drawings show in detail various arrangements where different conditions must be coped with. Twenty-four pages of useful information concerning matters relating to hydraulic work are also included, and here and there numerous valuable tabular compilations are available for reference. The book is accompanied by a pamphlet entitled "Facts and Figures," which comprises some 32 pages of testimonials.

Paints.—National Paint Works, Williamsport, Pa. This is a treatise on what is named "Technical Paints," for gas holders, power plants and water towers. No concealment is made of the ingredients of the various kinds of paints described and in each case a plain statement as to the best application for various purposes is given. There is also printed an interesting report on tests conducted by the Niagara Falls Power Company, in which various paints were experimented with in connection with the protection of iron and steel surfaces.

Automobiles and Bicycles.—Pope Mfg. Company, Hartford, Conn. Three 1905 catalogues describing the latest products in these lines. Besides the general views of the assembled machines, half-tone engravings showing the construction of the especially new features are used.

Testing Machines.—Riehle Bros. Testing Machine Company, Incorporated, Philadelphia, Pa. Supplementary sheets for catalogue A. Bound with paper cover and showing the latest improvements in the regular line of the company's testing machines.

Fan Motors.—Emerson Electric Mfg. Company, St. Louis, Mo. Two catalogues showing the latest types of fan motors of various styles placed upon the market this year. A number of styles of desk, bracket and ceiling fans are shown, as well as exhaust fans for industrial purposes.

Rock and Ore Breakers.—Allis-Chalmers Company, Milwaukee, Wis. Publication No. 117, treating the subject of crushing machinery and portable rock breaking plants and auxiliary appliances. Illustrated catalogue, 8 x 10½ inches, 36 pages. The latest types of rock and ore breakers produced by this company, known as styles D and F, the shown in general view and in detail. Portable outfits are shown in wagon type and in the shape of complete railway ballast plants mounted on flat cars.

Aermotors.—The Aermotor Company, Chicago, Ill. Pamphlet, 4¼ x 8¼ inches, 72 pages. It is prefaced by an historical sketch going back about 1000 years, when the first attempts were made to utilize the wind wheel as a machine to absorb power from the moving air and convert it into useful work. The development of the wind mill is traced in important steps down to present day practice. The booklet is profuse in illustrations showing the numerous applications and various styles of aermotors built by this company.

Samuel J. Reeves, superintendent of the Minneapolis Steel & Machinery Company, Minneapolis, Minn., has been made manager of the Virginia Bridge & Iron Company, owning a plant in Roanoke, Va., and having recently purchased the plant of the Carolina Steel Bridge & Construction Company, Burlington, N. C. The management of both plants has been given to Mr. Reeves, whose headquarters will be in Roanoke.

The Machinery Trade.

NEW YORK, February 21, 1905.

A peculiar condition of affairs confronts the machinery trade at this time. The situation is, to say the least, perplexing. On all sides there are abundant signs that promise big things for the present year in a business way. The great corporations are known to have plans under way for works betterments on a colossal scale and in many cases it has been definitely decided to proceed at once with these improvements. At the same time there exists at present a comparative lull in heavy buying and this is regarded by many machinery merchants with some anxiety. They are beginning to ask whether the improvements to which they have been pinning so much faith will actually be made. When they put this question to the principals they are usually met with the reply that matters are not ready. The unfavorable weather conditions have doubtless had some influence upon the slackening of business during the last few weeks. This has been the case more particularly in smaller lines, and as to the more formidable projects the adage that "large bodies move slowly" must be kept in mind. This is doubtless the time to exercise patience, for the evidences of the projected work planned for this year are sufficient to ease any apprehension that may be felt at present. In certain lines business is now in a flourishing condition, and, fortunately, there are men in the other branches of trade who can still be counted in the ranks of the optimistic.

Organization Matters.

Dealers in machinery and supplies throughout the northern section of the country have gotten together and formed a National Association, as outlined in our report on pages 651 to 653 of this issue. This matter has been of absorbing interest to the trade generally ever since the subject was first broached. That there are abuses that may be remedied by a national organization of those at the selling end there is no doubt. One of the most important subjects to be dealt with by the machinery contingent is that of stock orders. If the various dealers who handle the product of a certain manufacturer can work harmoniously a good deal will be accomplished not only for the manufacturer, but for the best interests of the trade at large. The success of the association will depend largely upon the question of whether or not the members will exercise broad gauge judgment in the case of the manufacturer who has found it advantageous to deal with the customer direct.

A rather interesting, though perhaps premature, rumor was in circulation on the street yesterday which purports that a consolidation of all the railroad equipment companies is being considered. According to the rumor the plan is to merge the American Locomotive Company and the principal car building and railway appliance companies into one large organization with a capital of \$100,000,000 or more, and it is thought in the trade that in view of the present competition among steel car builders and locomotive builders it is plausible that a scheme of this nature might be effected.

In connection with the proposed consolidation of the Brown Hoisting Machinery Company and the Wellman-Seaver-Morgan interests at Cleveland we understand that certain obstacles have appeared which have prevented the consummation of the merger along the lines originally proposed. Arrangements are now being made to carry out the negotiations along other lines, but at this stage nothing definite can be said as to the prospects of the project.

The Meadville Vise Company, Meadville, Pa., manufacturer of Barrett horizontal cylinder boring machines and vises, has changed its name to the Barrett Machine Tool Company. James O. Barrett and Charles J. Barrett, who constituted the Meadville Company, will continue in charge of the new company.

Railroad and Shipyard Work.

The announcement is made from Philadelphia that the Pennsylvania Railroad Company will buy new equipment this year to the value of \$23,000,000. It is also said that an additional appropriation of \$4,000,000 may be made for equipment and that a decision has been reached to order some 3000 additional freight cars, contracts having already been placed for 12,300 cars. Contracts have also been placed for 370 locomotives and the company has arranged to build 150 locomotives in its Juanita shops. Arrangements have also been made for as many as 200 additional locomotives, as may be needed later. This is interesting, inasmuch as it denotes that the company has abandoned its policy of retrenchment, which will doubtless have a material effect upon the loosening up of the strings which now hold in abeyance other mooted purchases involving a large outlay for new machinery.

In keeping track of the improvements being made and contemplated by the Erie Railroad Company the machinery trade has been following the tip that about \$150,000 would be spent this spring on enlargement and improvements of

the railroad shops at Hornellsville, N. Y. The presence of certain officials of the road at this point within the last few weeks has occasioned some comment in the trade and led to the expectation that something definite would be decided upon. While the matter is under consideration, we are advised by J. C. Stuart, general manager of the company, that it has not as yet been definitely decided upon.

In connection with the building of the Grand Trunk Pacific Railway system it is interesting to note that a bonus of \$100,000 has just been voted by the municipality of Edmonton for the construction of shops and a union depot at that point. So far as we can learn this is the first move made in the direction of establishing shops along the new system.

Members of the machinery trade have been following up the shipbuilding interests more carefully of late, as it is generally known that the American shipbuilding companies are counting on receiving a large amount of work from both the Japanese and Russian Governments. It is argued that both of these Governments must soon add to their naval complements, whether the war continues or is brought to a close.

The plans of the Bethlehem Steel Corporation we have already referred to. Attention is now directed toward the Harlan & Hollingsworth Company, Wilmington, Del. Reports from that center state that Philadelphia builders are now estimating on the new buildings to be constructed in connection with the proposed improvements. It is said that over \$300,000 will be expended in new buildings and machinery. The details of these improvements provide for the lengthening of the present dry dock, making it 350 feet long; the building of a new street car shop, which will enable the company to handle some 57 cars at one time; the building of an up to date boiler shop, 300 feet long by 124 feet wide, with a capacity of one marine type boiler a week; the construction of a new blacksmith shop and the converting of the present shop into a power plant for the purpose of generating electricity and compressed air and adding to the shipbuilding department such buildings as may be vacated through the occupancy of new buildings for car building purposes. It is intended to do away with the present power transmission system as much as possible and install electric drives, at least for the heavy machinery.

A project is on foot to establish a large shipbuilding plant at Halifax, N. S., and from the substantial aid promised by the city and the Provincial Government there is little doubt that the enterprise will be successfully established. At a recent meeting of the prominent business men of Halifax the Shipbuilding & Investment Company was organized with a large capital stock to carry out the project. This is a preliminary company formed for the purpose of getting the enterprise started on a large scale, and it has secured the best site in the port for shipbuilding purpose. It is the intention to get some prominent shipbuilding concern at present in existence to take hold of the new venture, and as soon as the Government has settled the question of the bounty it will pay, which will be definitely fixed at the present session of Parliament, the Shipbuilding & Investment Company will be in a position to negotiate with any responsible parties who may wish to undertake the enterprise. There has already been \$300,000 granted in bonuses by the city of Halifax and the Provincial Government, which in addition to the tonnage bounty to be offered by the Federal Government will be sufficient inducement for a responsible concern to take the matter up. According to present indications the Colonial Government will pay a subsidy of \$6 per ton for every vessel built by the new company. The officers and directors are: Geo. S. Campbell, president; J. A. Johnson, vice-president; G. Fred Pearson, secretary and treasurer; Mr. Hunter of the firm of Swan & Hunter, shipbuilders, Newcastle-on-Tyne; Geo. Stairs, Walter Allison and John Longard.

Municipal and Industrial Projects.

In the power plant equipment trade considerable skepticism is to be noted at the present time concerning the proposed municipal lighting plant for New York City. While the Board of Aldermen recently voted \$25,000 in corporate stock to be applied in the preparation of plans and specifications for the plant, several men in the trade who have been looking into the matter are of the opinion at present that the project will be allowed to die a natural death as soon as the present enthusiasm dies out. According to the judgment of Cary T. Hutchinson, who has been employed to prepare the plans, the cost of the entire plant will be about \$100,000. The final report will be submitted by the engineer about March 1.

Water Commissioner Oakley, New York City, has announced the completion of the plans for a high pressure water main system to extend from the Battery to Forty-second street. He states that the specifications will soon be issued and equipment advertised for. It will be recalled that the Board of Estimate appropriated \$3,900,000 for the work some time ago. According to the plans which were drawn by Deputy Chief Engineer D. E. Verona the territory will be divided into three districts, each having a pumping

station. These will be located at the Battery, the foot of Grand street on the East Side and the foot of Christopher street on the West Side.

The Green Fuel Economizer Company, 74 Cortlandt street, has closed contracts for about \$50,000 worth of new machinery equipment to be added to its plant at Matteawan, N. Y. It is rumored in the trade that this additional equipment is to be utilized in equipping a portion of the works which is to turn out a new line of product. Confirmation cannot be had at this time, but the report current in the trade is that the company intends adding a complete fan and mechanical draft department to its line of Green fuel economizers. The new machinery, we understand, is of a nature to be used in the manufacture of fans, blowers, &c. It is also said that the company intends invading the field of heating and ventilating of large industrial buildings.

It is likely that the Kinnear Press Radiator Company, recently organized at Pittsburgh, Pa., with a capital stock of \$400,000, will require considerable new machinery for equipping its new plant, which is to be erected at West Pittsburgh. The plant will be 120 x 600 feet and will have a capacity of about 8000 square feet of radiator per day. The company is affiliated with the Kinnear-Hood Steel Company, New York, which now has a fully equipped plant at Newark, N. J., and which, as has been noticed in these columns, has purchased a new plant in New Britain, Conn. No details of the company's plans are available for publication, and it cannot yet be ascertained whether the two plants will be operated or whether manufacturing operations are to be concentrated in the new plant in West Pittsburgh. The Kinnear-Hood Steel Company has moved its offices from 148 Broadway to 41 East Twenty-first street, New York.

The firm of Timmis & Clissold, Bound Brook, N. J., manufacturers of brass goods, whose plant recently suffered a fire loss, is now making preparations to rebuild its plant and will soon be in the market for a number of screw machines, milling machines, lathes, a planer and other machine tools. As it is intended to utilize the city electric service, the firm will not construct a power plant at this time.

The Mitchell-Diggins Iron Company, which is being organized at Cadillac, Mich., to construct a charcoal iron furnace, a more detailed description of which appears in another column, will be in the market within the next 60 days for the complete equipment, including machinery, engines, boilers, pumps and such other appliances as are necessary for the operation of an iron furnace. The furnace will be under the management of J. C. Ford, who now has charge of the charcoal furnace of the Spring Lake Iron Company, at Fruitport, Mich.

The Columbus Pneumatic Tool Company is building a plant at Columbus, Ohio, to manufacture pneumatic tools. The building is one story, of brick construction, with steel trussed roof, being 140 x 60 feet in size. Prism glass is used throughout on all shop doors and windows. Vertical gas engines will furnish the power, driving a Westinghouse generator, and the machine tools will be grouped and run by electric motors. The company is also building a brass foundry.

The Charles G. Smith Company, Park Building, Pittsburgh, has secured a contract for the entire machinery equipment for the new plant of the Firth-Stirling Steel Company, at Demmler, Pa., near Pittsburgh. The equipment consists of projectile turning lathes, boring mills, turret machines and special machines. All these tools will be built by the Bullard Machine Tool Company of Bridgeport, Conn., which the Charles G. Smith Company represents in the Pittsburgh district.

Manning, Maxwell & Moore have received orders for the entire machine shop equipment for two naval vessels now under construction. These are the United States cruiser Washington and the United States battle ship Kansas.

The Williams Engineering Company, Park Row Building, New York, which has the contract for constructing the New York anchorage of the new Manhattan Bridge, has placed an order with the National Hoisting Engine Company, Harrison, N. J., for four hoisting engines.

Catalogues Wanted.—The Fairbanks Company, Baltimore, Md., reports the loss by fire on February 17 of all of its catalogue files and price-lists, and will be glad if all manufacturers of machinery, supplies, &c., will send to them at once copies of their latest catalogues and discount sheets.

At the annual meeting of the American Tube & Stamping Company, Bridgeport, Conn., held on February 15, the following officers and directors were elected: F. A. Wilmot, president and treasurer; C. D. S. Miller, vice-president; Henry W. Nutt, secretary; A. J. Middlebrook, assistant treasurer; H. W. Hinks, assistant secretary; Edwin G. Sanford, Schuyler Merritt, Chas. Sanford, Edwin Langdon, Elwood Hendrick, Chas. P. Wilmot, Wm. C. Coffin and Walton Ferguson.

The New England Machinery Market.

WORCESTER, MASS., February 21, 1905.

The machinery market has changed but little during the past week. The slight let up in demand continues, which is variously attributed to the continued severe weather and to the fact that automobile manufacturers who have been buying rather generously have now pretty much supplied their wants. Whatever the cause, the result is not serious.

The Columbia Bolt & Nut Company, Bridgeport, Conn., is to erect a new factory on Railroad avenue, next to the plant of the Hathaway Mfg. Company. The building will be 50 x 150 feet and one story. The business has grown to such an extent during the past year that the present plant at the East End is no longer adequate. No definite plans have been made for the necessary new machine equipment.

The Vaughn Machine Company, Peabody, Mass., manufacturer of hide and leather working machinery, has begun the manufacture of automobiles, and expects that the business will require extensive additions to its plant and machine equipment. The company has made arrangements to manufacture on an extensive scale the 6-ton Coulthard commercial steam truck, a standard English machine, and an order is going through the works at the present time. The touring car manufactured is a 40 to 45 horse-power side entrance machine.

The Baker Electric Company, Hartford, Conn., a newly organized Connecticut corporation, is to manufacture electric specialties in that city. A plant will be established at once, though the location has not been decided further than that it will be in Hartford. The company will buy some new machinery. Its present address is 24 Beach street, Hartford. The incorporators are Foster E. Harvey, Robert H. Lewis and Burton E. Baker. The authorized capital stock is \$50,000.

The Pacific Iron Works, Bridgeport, Conn., contemplates a gradual but complete reorganization of the plant and the establishment of a standard line of machinery as well as a continuation of all kinds of repair work. Present tools will be gradually replaced with more modern machines. The large modern foundry is equipped to make castings up to 10 tons each. Propeller wheels will be a specialty in connection with marine work, and in addition the works will build stationary engines, hoisting engines, tanks, crushers, millers and special machinery of the company's own design or that of customers. L. A. Parkhurst, the new general manager, has had a long experience in machinery manufacturing and in repair work. For the past five years he has made a specialty of systematizing and intensifying production, and has been connected with leading engineers of the country in this class of work.

The Waterbury Mfg. Company, Waterbury, Conn., is planning to erect a five-story factory building on Vine street, Waterbury, for which new machinery will be required. The fifth story will be used for brass casting, the company planning to have all its furnaces and brass casting pots on the top floor, with fan ventilation to carry off the heat and gases. The details are not fully decided.

Poole & Price is the name of a new firm that has started a general machine shop at 421 Atlantic avenue, Boston, Mass.

The Trumbull Electric Company, manufacturer of electric supplies, Plainville, Conn., expects to add to its factory capacity this season, and will require new machinery in the near future. The company has just issued \$5000 of new stock, increasing its paid in capital from \$15,000 to \$20,000. The authorized capital stock was recently increased from \$20,000 to \$100,000.

Tinker Bros., 43 Columbus avenue, Boston, Mass., who conduct an automobile repair and sales establishment, are to erect an automobile repair shop, 27 x 100 feet, on Beach street, Manchester, Mass. New machinery will be required, the amount to be determined by the demands of the branch business. Work will be pushed so that the shop will be ready for business May 1.

The Worcester Steel Foundry Company, Millbury, Mass., is planning to make a specialty of steel castings for automobile purposes, and will this season add to its plant with this end in view. The company has already done considerable of this class of work, so that it has passed the experimental stage. It will soon be in the market for new tools, especially such as are used in removing sprues and finishing castings.

The Fitchburg Machine Works, Fitchburg, Mass., is planning to make some changes in the design of its tools as soon as H. F. Allen, the treasurer, is able to attend to business again. He is now convalescent, after a severe attack of typhoid fever. It is probable that the company will continue to occupy its present shop for some time to come, though it is understood that the property has passed into the possession of the New York, New Haven & Hartford Railroad, which will utilize it at some future time for repair shop purposes.

The Standard Plunger Elevator Company, Worcester, Mass., is contemplating the erection of a large addition the coming spring, but the matter is not entirely settled, being contingent on certain business. If the plan goes through the

company will be in the market for a considerable amount of new machine tools.

The Providence Gas Company, Providence, R. I., has bought a large tract of land at Sassafras Point, and extensive improvements will be made in contemplation of the erection of large gas works. The new works, part of which will be equipped this season, will involve the outlay of \$1,000,000.

The Acme Clothespin Company, Dedham, Maine, is to establish a plant for the manufacture of a double end clothespin, and will require machinery to produce about 2000 dozen clothespins per day.

Chicago Machinery Market.

CHICAGO, ILL., February 21, 1905.

Machinery row is active as a consequence of a very general buying movement rather than because of any individual deals of startling magnitude. Thus far makers have been able to supply the demand promptly for standard goods with the exception of certain sizes of lathes, the manufacturers having so much difficulty in making their deliveries to the Japanese Government that they are forced to neglect their home customers. It is thought that equilibrium will be established before the end of March.

Burlington Railroad and Other Machinery Needs.

The Chicago, Burlington & Quincy Railroad has sent out specifications of miscellaneous machinery requirements for the many shops on its system.

The International Harvester Company has practically completed the purchase, and in most cases the installation, of the large equipment of machines and tools which it purchased to transform its Milwaukee plant (formerly the Milwaukee Harvester Company) from an implement to a gasoline engine and cream separator works. It is thought that makers of gasoline engines in small units, particularly those intended for rural trade, will shortly encounter formidable competition from this source. This competition, however, is expected to be one of a magnificent selling organization rather than one of low prices.

The Bucyrus Company, South Milwaukee, has been a large purchaser of machine tools of all classes, in order to put its equipment in shape to take care of the large orders for steam shovels from the Panama Commission, and also to take care of its heavy orders for surface mining machines from the United States Steel Corporation. One of its most noteworthy purchases was a 16-foot Ridgway boring mill of unusually heavy construction.

The Goodman Mfg. Company, Chicago, has completed the purchase of over 30 machines to equip the 150-foot extension made to its plant last year. The full equipment of the plant, with this addition, will be required to supply the demand for its electrical mining machinery.

The Standard Mfg. Company, Hammond, Ind., is erecting a factory, 100 x 110 feet.

William Busby, South McAlester, I. T., will build two coal washing plants.

Municipal Work.

The Chicago City Council has just appropriated \$96,200 to be expended in municipal plants, as follows: Boiler plant for City Hall, \$35,000; boiler plant Harrison street pumping station, \$50,000; stokers and smoke consumers for various plants, \$10,000, and smoke consumers for Kensington and Pullman sewer plants, \$1200.

The Commissioner of Public Works of the City of Chicago will open bids March 1 for four 250 horse-power internally fired boilers for the Sixty-eighth street pumping station, including mechanical stokers and coal and ash handling equipment for that 1000 horse-power plant. Bids closed February 21 for a horizontal compound pumping engine for the same plant, with a capacity of 20,000,000 gallons every 24 hours.

E. B. Ellicott, the city electrician, has received bids for five mechanical stokers for the Halsted street power house, but instead of taking the responsibility of awarding the contract has turned the bids over to the Finance Committee of the Council. This was deemed advisable because all three bidders submitted different appliances. The bids were as follows: Green Engineering Company, \$7850; Underfeed Stoker Company of America, \$8214; Hawley Down Draft Company, \$8750. The city is now using Hawley furnaces on most of its water works boilers, and the Department of Electricity has some Green stokers in operation. The Finance Committee will invite each bidder in turn to come before it and present its case.

The Sanitary District of Chicago, commonly known as the Drainage Canal Commission, opened bids February 15 for the four 4000-kw. turbo generators and two 350-kw. exciters for its Lockport power house, which have been referred to previously in these columns. The bids were as follows: Crocker-Wheeler Company, \$101,366; Westinghouse Electric & Mfg. Company, \$114,500; Bullock Electric Mfg. Company, \$117,074; National Electric Company, \$119,790; General Electric Company, \$123,200; Stanley Electric Company, \$124,665. The chief engineer, Isham Randolph,

has the bids under advisement, as differences in design and construction must be considered as well as price.

Power Plant Equipment.

The Spokane Traction Company, Spokane, Wash., will soon erect a \$700,000 power plant at Cœur D'Alene, Idaho. Jay P. Graves is president of the company.

The San Joaquin Power Company, Fresno, Cal., will commence immediately the construction of a 3000 horse-power plant near Crane Valley, about 50 miles from Fresno. Purchases of machinery will be made by S. A. Butler, purchasing agent, Pacific Electric Building, Los Angeles, Cal.

The Washington Water Power Company, Spokane, Wash., is erecting a power house at Post Falls, Idaho, and has closed contracts with the Platt Iron Works Company for 6000 horse-power in turbines and with the General Electric Company for the electrical machinery, including switchboards. The concrete work for the dams and building is being done by the Nelson Burnett Company and Chas. S. Bihler, Tacoma, Wash. D. L. Huntington is second vice-president and general manager.

The Citizens' Light, Heat & Power Company, Wichita, Kan., will soon commence the erection of a new power plant. H. G. Landis is interested.

The Big Brushy Coal & Coke Company, Harriman, Tenn., is erecting an electric power plant at Petros, Tenn., for which it has already purchased two 150 horse-power boilers, one 275 horse-power Skinner engine, one 175-kw. Westinghouse generator and Baldwin-Westinghouse electric mine motors. A larger air compressor will probably be added to the equipment in the spring.

Contracts for the electric light plant at Coffeyville, Kan., were let February 3, as follows: Two 200 or 225 kw. alternating current generators, with exciters, Hodge-Walsh Electrical Company, Kansas City, Mo.; two simple Corliss engines for driving the generators, Hooven, Owens, Rent-schler Company; four tubular boilers for furnishing steam for above engines, C. A. Burton Company, Kansas City, Mo., for Kewanee boilers; one 600 horse-power heater to Walter L. Flower & Co., St. Louis, Mo.

The Clinton River Power Company will be organized as soon as a franchise can be secured from the city of Pontiac, Mich., for the purpose of generating electricity for heating, lighting and power. The promoters now control 6 miles of the Clinton River and are in possession of the necessary funds to push the scheme as soon as a franchise is granted. The company will be incorporated for \$100,000. Water wheels, alternating current dynamos and all necessary equipment for a system of this kind are required. Seeley & Son, Amy, Mich., are among those interested in the proposition.

The National Electric Company, Milwaukee, has recently secured one of the largest contracts for electrical machinery awarded to any company of late, aggregating \$175,000 for electrical appliances for the Union Electric & Power Company, St. Louis. The machinery is to be used in the company's substation for the distribution of power from the main station and power house. According to the terms of the contract, the machinery is to be delivered to St. Louis before May 1. Another contract recently secured by the National Electric Company is one for the equipment with air brakes of 700 cars for the Cleveland Street Railway Company.

The Barney & Smith Car Works, Dayton, Ohio, has commenced the purchase of materials necessary to the doubling of the capacity of its present plant. The first contracts for machinery were placed February 11, and included the new engines and electric generators for the extension of the main power plant. The Buckeye Engine Company, Salem, Ohio, was awarded the contract for two 400 horse-power engines, and the Crocker-Wheeler Company, Ampere, N. J., received an order through its Cincinnati office for two 275-kw. electric generators. Generators and engines are to be of the direct coupled slow speed type.

The Fair, a large Chicago dry goods store, which is adding two stories to its present building, is also purchasing a power equipment, including 2000 horse-power in boilers, 1800 horse-power in engines and three 400 and two 250-kw. generators. Jenney & Mundie are the architects.

Mandel Bros., another Chicago dry goods house, is in the market for 2400 horse-power in boilers, 1800 horse-power in engines and 1200-kw. generators, together with pumps and other accessions.

Agents of the Japanese Government have placed orders for the immediate construction and shipment of 152 locomotives, of which 102 will be built in the United States and 50 in Scotland. The Baldwin Locomotive Works, Philadelphia, will furnish 77, which will probably cost about \$1,000,000, although the bids were not made public. The Atlantic Equipment Company, New York, secured a contract for 25. The locomotives are to be adapted for use either in Korea and Manchuria, or on home roads in Japan. Shipments are to begin in 30 days.

Cleveland Machinery Market.

CLEVELAND, OHIO, February 21, 1905.

Local machinery dealers say that business has been rather quiet since the first of the year and that now it is showing some improvement. Stocks are being filled up and some difficulty is being experienced in securing prompt deliveries on certain classes of tools, such as medium sized lathes, milling machines, &c. The automobile industry is booming here at present. Three of the largest manufacturers of these goods are increasing the sizes of their plants. The recent automobile shows at New York and Chicago indicated that the demand for these vehicles would be much larger than ever before, and in consequence the great majority of manufacturers are increasing their outputs over what they had originally planned for.

Wheeling & Lake Erie's Machine Tool List.

A machine tool order which has been talked of for some time is that of the Wheeling & Lake Erie Railway for its shops at Canton. J. P. Stark, Electric Building, this city, purchasing agent for this railroad, states that the tools will be required in the near future, as the new shops are well under way. Lists of the tools were sent out to machinery dealers last week. Included in the requirements are the following: Large driving wheel lathe, 300-ton wheel press, four screw cutting lathes, two large turret lathes, one 56-inch planer, one slotting machine, one bolt cutter and a vertical drill press for the machine shop; a draw bench, 12 x 18 inch planer, car trimmer machine, band saw, rip saw, 30-inch surfacer, wood lathe, 24-inch jointer, two spindle shaper, mortising machine, car grainer, car sill machine, molding and flooring machine and a 36-inch sander for the wood working department. A short time ago the company placed contracts for its power house equipment, including a 75 and a 150 kw. Bullock generator, both direct connected to Ideal engines, and two 150 horse-power Erie City boilers. Later the company will call for proposals on an equipment of pneumatic hand tools and a 1000-foot air compressor outfit.

Other Machinery Requirements.

The repair shops of the Baltimore & Ohio Railway at Lorain, Ohio, were damaged by fire last week. The machine shop and its equipment were badly damaged, and the boiler shop, tin shop and storerooms were destroyed. The loss is estimated at \$36,000. The company's officials at Cleveland state that the shops will be rebuilt, but not on the old site. Plans had recently been made for improving the old shops, but now larger and better facilities will be secured by the erection of new buildings. Much of the machinery was damaged beyond repair, but other pieces were only partially destroyed and are now being repaired. A temporary repair shop is being fitted up at Lorain until the new buildings can be completed.

The Winton Motor Carriage Company at the beginning of the season prepared for an output of 1500 automobiles, but it has been found that, despite the fact that the capacity of the plant was nearly doubled last year, it is now necessary to erect a new addition which will increase the capacity nearly one-third. The new building will be a combination foundry and metal working shop, an automobile repository and an office building. The first mentioned building will be 100 x 400 feet and it will contain brass and aluminum foundry, annealing ovens, brazing furnaces, &c., together with metal working shop. The buildings at present occupied by these departments will be turned into assembling and machine shops. The present repair shop building will be used for an erecting shop, while the new repository will be fitted with equipment for repair work, taking all that class of work out of the factory proper. The office building will be large and substantial. The increased equipment will render it necessary to add to the power station equipment.

The Royal Motor Car Company is erecting an addition, 100 x 125 feet, and is installing new machinery to bring its output up to 400 cars this season.

The Peerless Motor Car Company is moving into its new factory building. It recently bought quite a list of new machine tools and will buy odd pieces from time to time during the next two or three months. Its output will be nearly double that of last year.

A company has been organized at Paulding to conduct a general machine and repair business, and the parties interested are planning to increase the capital stock to a considerable figure and go into the manufacture of automobiles. Officers of the company are: W. H. Phipps, president; J. H. Laughlin, secretary, and S. T. Price, superintendent. They will erect a building 44 x 100 feet, two stories high, and will install a gas engine, lathes, drill presses and other machinery adaptable for the automobile business should they go into it.

The Peterson Mfg. Company of Kent, manufacturer of agricultural implements, is preparing to erect an addition

and will install considerable new machinery. A. F. Peterson is general manager.

Newspaper reports state that the Norfolk & Western Railway contemplates doubling the capacity of its shops at Portsmouth, Ohio, including the erection of a foundry. J. S. Pearce, master mechanic, informs us that the company is putting up a tank shop for repairing tenders and that no new tools will be required in connection with it. He knows nothing about a new foundry for that place.

The Marion Steam Shovel Company, Marion, Ohio, last week closed contracts for six elevator dredges, part of them for the California golf fields and part of them for the Klondike gold fields. The dredges will have 75 buckets in their bucket lines, each with a capacity of 7 cubic feet, being considerably larger than anything the company has constructed heretofore.

E. T. Connors, secretary of the Portsmouth Steel Company, Portsmouth, states that the company contemplates increasing its open hearth melting capacity, adding one additional furnace to this department. It will also improve its blooming mill department and is supplanting the present finishing mills with new modern ones. It contemplates installing a modern three high 30 x 84 plate mill and will increase the tonnage production of the mill to fully twice its present capacity.

The Van Buren, Heck & Marvin Company, Findlay, manufacturer of the Buckeye traction ditcher, is meeting with such demand for this machine that it has found it necessary to increase its facilities. Within the next eight or ten weeks it will install a smith shop and additional machine shop equipment. Last week officers of the company were elected as follows: George Carrothers, president; N. L. McLaughlin, vice-president; W. D. McCaughey, secretary-treasurer, and C. J. Van Buren, manager and superintendent. Last week the company shipped a 42-inch by 7½-foot conduit ditcher to Marseilles, France, and this week a 24-inch by 10-foot conduit ditcher to Oklahoma. Two machines were recently shipped to Australia and one to Louisiana.

The American Motor Truck Company, Toledo, has been organized to manufacture heavy gasoline motor trucks. Charles A. Keller is president and general manager; Fred C. Avery, vice-president and mechanical engineer, and Roy H. S. Spencer, secretary-treasurer. It is claimed that the gasoline truck is more economical than the electric and its radius of action is not limited. The company has secured a location for a factory and within the next 60 days will be in the market for machinery with which to equip the plant. The list of requirements will include milling machines, lathes, drill presses, shapers, gear cutters and other machinery used by automobile manufacturers.

The Kinnear Mfg. Company of Canton, Ohio, manufacturer of rolling steel doors and shutters, was reported to have completed plans for a new factory. The company writes us that this is incorrect and that no definite plans for a new plant have been formed.

The Board of Public Service, Niles, Ohio, is planning to install additional equipment in the city lighting plant. The Westinghouse Electric & Mfg. Company, Pittsburgh, has submitted a proposition for the installation of a Westinghouse-Parsons steam turbine generator.

The city of Elyria, Ohio, has authorized an issue of \$50,000 for water works improvement, and bids will be called for on the following equipment: One 5,000,000-gallon high duty pump, one 400,000-gallon low service pump, two 5,000,000-gallon filters, one 125 horse-power boiler and a considerable quantity of pipe.

The Board of Public Service of Cleveland is having plans and specifications prepared for additions to the plant of the Cleveland Garbage Disposal Company, which is operated by the city. Considerable new machinery will be installed. Proposals are being called for on 10,000 ½-inch, 100 1-inch, 20 2-inch, five 3-inch, 15 4-inch and four 6-inch water meters for the water works department.

It would appear to be rather early for authentic information on the condition of the winter wheat crop, but Kansas advices state that reports to Secretary Coburn of the State Agricultural Department and to the railroad offices about crop conditions say the wheat never gave promise of a greater crop. It is expected that the Kansas crop this year will exceed any wheat yield in the State's history.

A movement is on foot among the technical societies of Pittsburgh to secure quarters for all these bodies in one of the new hotels now building in that city. These embrace the Engineers' Society of Western Pennsylvania, the Railway Club, the Traffic Club and the Pittsburgh Foundrymen's Association. Committees from all these bodies have been appointed.

The Philadelphia Machinery Market.

PHILADELPHIA, PA., February 21, 1905.

Trade conditions in this vicinity are still dominated by adverse weather conditions, and there has been little actual new business transacted in the machinery and allied trades during the past week. No new specifications for machinery or tool equipments have been received, and in many instances the usual quota of small orders has diminished. Railroads have had great difficulty in moving freight, and not a few manufacturing plants are anxious as to their deliveries of new materials, notably in cases of coal and coke. Outdoor work is at a standstill and will remain so until the weather moderates. This delays intended purchases for machinery and tools, orders for which will quite likely come out with a rush during the early spring months. The present lull is not looked upon as a condition of the trade whereby future business can be estimated, but rather one of those winter "hold-ups" not unusual to the trade in this territory. Machine and tool builders are, however, comfortably busy; some shops have as much work as they can handle, while others are gradually increasing their production. Deliveries on some special lines are hardening, and while immediate orders are probably scarce the conditions on the whole are satisfactory and encouraging.

Plans for a system of high pressure fire mains for the city of Baltimore, Md., are being completed under the supervision of City Engineer Herton. The proposed line is to cover the section bounded by Eutaw street and Jones Falls and Lexington and Barre streets. The pipes are to be laid in the center of the bed of the street, with the Y-shape connections 50 feet apart, the center connection to be equipped with a monitor pipe which will be worked with a crank, so that it can be turned in any direction desired. Under this system the hydrants and plugs on the sidewalk will be discarded, and the advantage of getting the water to fight fires from the center of the street at every 50 feet throughout the congested district will be attained. The openings for attachments in the streets will be protected by plates. The pumping station will probably be located at Pratt and Light streets. The total cost for this equipment is estimated at \$400,000.

The Coleman Boiler Works, Baltimore, Md., whose temporary location is 422 East Saratoga street, will during the coming spring either erect or occupy a new plant for the manufacture of boilers, stacks, tanks, &c. At the present moment plans have not been definitely decided upon.

The city of Philadelphia is having plans prepared for a new ice boat to replace ice boat No. 3, recently sunk at the Delaware Breakwater. The old boat was of antiquated design and had been in service 33 years. The new boat or boats, as it is probable that two will be built, will be of the combination ice and fire boat type. The plans will probably call for vessels constructed entirely of mild steel, 50 per cent. heavier than that used in merchant vessels, and will also be protected by a 5-foot belt of steel 1 inch thick extending from stern to stern, 1 foot above and 4 below the water line. The Melville-MacAlpine Company, marine engineer, has been commissioned to draft the plans.

The Baldwin Locomotive Works has during the past week closed with representatives of the Japanese Government for a number of locomotives to be built and delivered at an early date. While the officials of the Baldwin Works refuse information as to the number of engines ordered or any data regarding same, we have been informed that the allotment to the local company at this time was 77. The locomotives, it is said, will be of a composite type, having a fair amount of speed and still be able to perform heavy duty satisfactorily.

Chas. A. Sieling, contractor, will erect a two-story brick box factory, 60 x 97 feet, for W. H. Schultz, at Bush and Ridgely streets, Baltimore, Md. Operations will be begun as soon as the weather permits. Equipment for the building has not been entirely decided upon.

The Wm. Adams Foundry Company will erect a third story mansard roof on its present office span of buildings at 960 North Ninth street. The improvement will be 19 x 107 feet and will be used for pattern storage.

The Cruse-Kemper Company, Ambler, Pa., will erect a 75-foot span bridge over the Baltimore & Ohio Railroad at Twenty-sixth and Pine streets, in this city, for the Sand, Lime & Brick Company. Local permits have been secured to proceed with the work.

T. F. Schneider, architect, Bond Building, Washington, D. C., has submitted plans for estimates on a new apartment house, to be known as the Florence Court Apartments, located in the above city. The building is to be of stone and structural steel, six stories in height, the dimensions being 150 x 230 feet.

Charles W. Cross, electrical engineer for the Eastern Ohio Traction Company, has entered the employ of the Crocker-Wheeler Company, Ampere, N. J., and is attached to its Cleveland office.

Government Purchases.

WASHINGTON, February 21, 1905.

Secretary Morton has decided to consolidate the different power plants in the navy yards and stations, which are now in triplicate and sometimes quadruplicate. About \$300,000 will be expended in the next year in this consolidation of the power plants and probably the first yards where this work will be done will be at Portsmouth, N. H.; Bremerton, Wash., and Charleston, S. C.

After a protracted fight over the power plant for the Military Academy at West Point, N. Y., the contract for the boilers has been awarded to the Babcock & Wilcox Company, New York.

The Bureau of Supplies and Accounts of the Navy Department, February 14, opened bids for machine tools, &c., for the Mare Island and Puget Sound navy yards, as follows:

Bidder 8, Bentel & Margedant Company, 116 North Fourth street, Hamilton, Ohio; 12, Chicago Pneumatic Tool Company, 1010 Fisher Building, Chicago, Ill.; 15, Caldwell Bros. Company, 116 Jackson street, Seattle, Wash.; 24, Columbus Pneumatic Tool Company, Columbus, Ohio; 25, Dunham, Carrigan & Hayden Company, 17 Beale street, San Francisco, Cal.; 26, Drew Machinery Agency, Manchester, N. H.; 34, Arthur Gamwell, Blaine, Wash.; 43, Hallidie-Henshaw-Bulkley Company, Seattle, Wash.; 47, Henshaw, Buckley & Co., 48 Fremont street, San Francisco, Cal.; 48, Ingersoll-Sergeant Drill Company, 26 Cortlandt street, New York City; 58, C. W. Maxwell, 58 First street, San Francisco, Cal.; 60, Montgomery & Co., 105 Fulton street, New York City; 67, Niles-Bement-Pond Company, 136 Liberty street, New York City; 71, Patterson, Gottfried & Hunter, Limited, 150 Centre street, New York City; 74, Pacific Tool & Supply Company, 101 First street, San Francisco, Cal.; 75, Pacific Hardware & Steel Company, 401 Mission street, San Francisco, Cal.; 97, Taber & Co., Grant Building, San Francisco, Cal.; 98, Tatum & Bowen, 34 Fremont street, San Francisco, Cal.

Schedule 41.

Class 1. One No. 1 pneumatic nonreversible drill and boring machine—Bidder 12, 150; 24, \$185; 48, \$142; 98, \$260.

Schedule 42.

Class 2. One band saw—Bidder 15, \$279.45, \$304.45, \$352 and \$320; 43, \$375.26; 98, \$300.

Class 3. One double cylinder endless bed surfer—Bidder 8, \$840; 47, \$935.

Class 4. One precision lathe—Bidder 43, \$430; 67, \$445; 74, \$448.

Class 5. One planer—Bidder 15, \$1215, \$1247, \$1550.50, \$1625.50; 43, \$480; 98, \$659.

Class 6. One boring and turning machine—Bidder 15, \$1277.39 and \$2302.39; 43, \$2219.20; 67, \$2230 and \$2150; 98, \$2128.

Class 7. One filing machine—Bidder 43, \$235.

Class 8. One drill press—Bidder 15, \$991.75 and \$1016.75; 43, \$872; 67, \$1045; 74, \$909.

Class 9. One electric forge—Bidder 43, \$174.24.

Class 10. One bench grinder—Bidder 15, \$89.70; 43, \$58.30; 67, \$63.

Class 11. One arbor and mandrel press—Bidder 26, \$100; 43, \$74 and \$43.60; 67, \$125; 74, \$90.

Class 12. One sheet metal worker's shear—Bidder 15, \$35.10; 43, \$30; 67, \$73; 74, \$27; 98, \$32.50 and \$37.50.

Class 13. One vise for drill press—Bidder 43, \$65.50.

Class 14. One combination saw and dado machine—Bidder 47, \$270; 98, \$255.

Schedule 49.

Class 16. Ninety-nine Morse machine drills, four spiral end mills, six taper reamers, &c.—Bidder 25, \$291.37; 34, \$455.25; 43, \$384.81; 58, \$391.78; 60, \$279.08; 71, \$315.57; 74, \$343.01; 75, \$345.11; 97, informal, part of class.

Class 17. Metal splitting cutters, double angle cutters, &c.—Bidder 43, \$261.35; 58, \$205.12; 60, \$201.77; 74, \$200.15; 75, \$221.09.

W. L. C.

New York Pig Iron Warrant Market.

Trading in pig iron storage warrant certificates on the New York Produce Exchange was fairly active the past week, with sales aggregating 1100 tons, all of which were made on Tuesday. The sales in detail were: February, 100 tons, \$16.45, and 600 tons, \$16.50; March, 200 tons, \$16.40, and 100 tons, \$16.45; July, 100 tons, \$16.50. The following are the prices established on call Tuesday noon:

	Bid.	Asked.
Cash	\$16.00	\$16.50
February	16.50	16.70
March	16.40	16.45
April	16.45	16.60
May	16.40	16.50
June	16.45	16.60
July	16.45	16.50

Iron and Industrial Stocks.

NEW YORK, February 21, 1905.

The special feature of this week's stock market is the sensational advance in the stocks of some of the companies whose names are coupled with the new consolidation scheme. Sloss-Sheffield common, which sold at 70 last Thursday and which had advanced from day to day until it reached 79½ on Monday of this week, sold this morning up to 92, while the preferred, which sold at 107¼ on Friday, touched 111 on Monday. Tennessee Coal, which sold at 81 last Thursday, advanced to 85 this morning. Republic preferred, which sold at 75½ on Saturday, touched 79 this morning. Other iron and steel stocks are very firm. United States Steel common sold up to 33¼ on Monday, the preferred up to 95½ and the new 5's up to 95. Colorado Fuel, which sold at 49¾ on Friday, touched 52½ on Monday. Steel Foundries preferred advanced from 61½ on Friday to 63 on Monday. Can preferred sold up to 64¾ during the week, with rumors of the probability of being placed on a 6 per cent. basis when the next quarterly dividend declaration is made. Last transactions up to 1.30 p.m. to-day were made at the following prices: Can common 10½, preferred 65; Car & Foundry common 34½, preferred 93¾; Locomotive common 41, preferred 112; Steel Foundries common 16¾, preferred 63¾; Colorado Fuel, 52½; Pressed Steel common 37½, preferred 88¾; Railway Spring common 36, preferred 97; Republic common 20¾, preferred 79¾; Sloss-Sheffield common 96, preferred 110; Tennessee Coal, 84½; United States Steel common 33¾, preferred 95½; new 5's, 95.

The Dominion Coal Company.—The annual report of the Dominion Coal Company, Limited, for the year ended December 31, 1904, shows the following changes as a result of the year's operations:

	1904.	1903.	Increase.
Net profits, &c.....	\$1,620,475	*\$1,726,407	†\$105,932
Interest	351,814	166,500	185,314
Balance.....	\$1,268,661	\$1,559,907	†\$291,246
Dividends	240,000	1,290,000	†1,050,000
Balance.....	\$1,028,661	\$269,907	\$758,754
Sinking fund.....	138,323	107,855	30,468
Surplus.....	\$890,338	\$162,052	\$728,286
Previous surplus.....	226,912	64,860	162,052
Total surplus.....	\$1,117,250	\$226,912	\$890,338

* Includes six months' rent from Dominion Iron & Steel Company, amounting to \$800,000; net proceeds from sale of coal and net income from steamships, railway, &c. (for six months), amounting to \$917,803.

† Decrease.

The falling off in net profits is accounted for by increased cost of production during the first half of the year, occasioned to some extent by the exceptionally severe weather conditions, but more particularly by the loss of a large amount of remunerative business with United States customers, caused by the reimposition of the coal duties and by the payment of duty on shipments to the New England Gas & Coke Company. The company has paid the usual half yearly dividends on its preferred stock, but the directors, after full and careful consideration, decided that in the best interests of the company it was advisable not to pay any dividends to the common stockholders at present.

The Chicago Pneumatic Tool Company.—The annual meeting of the stockholders of the Chicago Pneumatic Tool Company was held in Jersey City February 20. Charles M. Schwab, F. M. Prince and J. W. Budworth, the directors whose terms expired, were all re-elected. President J. W. Duntley presented the following statement, giving information regarding the company's financial condition additional to that made public some weeks ago: "Your attention is called to the showing of quick assets, amounting to \$1,263,372.73, against which are current liabilities of \$156,943.49, which includes accrued interest on bonds. The excess of current assets, amounting to \$1,108,602.39, shows an increase of over \$450,000 since your company was organized January 1, 1902, notwithstanding liberal appropriations for improvement work, and on account of the Fraserburgh (Scotland) plant. In the surplus account \$195,324.45 was added for the year 1904. The surplus added for 1903 was \$113,706.37. With the improved trade conditions during the past quarter, the demand for our tools and equipment has increased until our factories are now running to their full capacity in order to supply the demand."

At the annual meeting of the Union Natural Gas Corporation, held in Pittsburgh last week, directors were elected as follows: T. N. Barnsdall, J. C. McDowell, B. P. Whitcomb, H. McSweeney, Charles E. Speer, Charles Donnelly, P. W. Lupher, S. A. Wheeler, William I. Missimer. The annual report showed gross earnings of \$2,419,188.96; net earnings, \$1,619,220.70, and a surplus for the year after all charges of \$373,251.41. During the year the company acquired 55,568.62 acres of new oil and gas leases. It drilled 69 wells, of which 60 were productive of gas and 9 unproductive; 27 wells were abandoned. It laid pipes during the year as follows: Main line division, 12½ miles; field lines, 70 miles; cities and towns division, 35 miles. Since the last report the number of consumers has been increased 6923.

Dividends.—National Lead Company has declared the regular quarterly dividend of 1¼ per cent. on the preferred stock, payable March 15.

Threatened Shortage of Gasoline.

The Standard Oil Company is sounding a note of warning to makers, sellers and users of gasoline engines, stoves, launches and automobiles. The warning is to the effect that the phenomenal increase in the consumption of gasoline for heating, lighting and power purposes will inevitably lead to a shortage and higher prices. Only a few years ago gasoline was an almost unsalable by-product of petroleum, and in line with its policy of creating a demand for slow selling products that company fostered and stimulated the manufacture and sale of gasoline stoves. Then came the gasoline engine, and on its heels the automobile, followed by extensive systems of domestic and municipal lighting by gasoline. Three or four years ago the Standard Oil Company, reading the future in the conditions already existing, began to warn the public that the supply of gasoline would soon be inadequate to the demand. But this warning has been largely dismissed by the trade and the public at large as only another "Standard Oil scheme." Fortunately, the supply of petroleum has recently been greatly increased, or the threatened shortage might have become a fact.

In refining crude petroleum only from 8 to 12 per cent. of naphthas is produced, depending on the gravity of the oil. From these naphthas only about 50 per cent. of gasoline can be obtained, so that the maximum production of gasoline is limited to an average of 5 per cent. of the crude oil refined. But the actual production of gasoline is limited in other ways. As soon as the refiners discover that they are glutting the market on the principal petroleum products—kerosene, paraffine and lubricating oils—they cease refining. It is stated that this condition is imminent, as there has already accumulated a very great surplus, particularly of refined oil, and the refineries will not continue to make and store such surplus for the sake of producing the small percentage of naphthas, no matter how great may be the demand for this class of product.

The immediate remedy for the excessive demand for gasoline is likely to be sharp advances in price until the price becomes prohibitive for ordinary purposes, the high prices being maintained until the production can catch up with the demand and an equilibrium be restored. Another remedy which is being strongly exploited by the Standard Oil Company is the manufacture and sale of stoves that burn kerosene instead of gasoline. The manufacture of oil burning engines, in which the oil is vaporized in hot tubes and the resulting gas exploded similar to the gasoline engine, is also receiving the encouragement of that company. Efforts are also being made to perfect oil burning automobile engines. Makers of gasoline lighting systems for homes, stores and towns are charged with working the greatest damage in proportion to the success of their operations, because every system they install reduces the consumption of the too plentiful kerosene and substitutes for it a product that cannot be made without producing six or seven times its volume in the kerosene which it displaces. Here, too, earnest missionary work is being done.

Every manufacturer of gasoline stoves, engines and lamps will have to decide for himself how much truth is in the Standard Oil Company's warning, and every jobber and dealer who has now in stock machines and devices whose sale depends on the ready supply of gasoline at a low price will have to do the same. The premises and conclusions seem to be sound and logical, and the subject is certainly worthy of careful study.

The big electrical locomotive built for the New York Central terminal service was almost destroyed by a fire in the substation at Hoffman's Ferry, 4 miles west of Schenectady, N. Y., on February 19. This is the locomotive which was recently tested and attained a speed of 90 miles an hour.

HARDWARE.

THE power of associated effort was the subject of an interesting address by Secretary T. James Fernley of the National Hardware Association before the recently organized National Supply and Machinery Dealers' Association, at Cleveland. Describing the method adopted by his association to induce a manufacturer to desist from some practice which has proved objectionable or detrimental, he stated how letters of protest are sent to the manufacturer from the members of the association who are his customers. The first day or two these letters reach him from nearby customers. Each day thereafter the letters drop in from a wider territory, and they continue coming until at length all sections of the country are represented in these communications.

This method of procedure would seem to be well calculated to accomplish the purpose intended. Obviously the recipient of such a flood of letters from so great an expanse of territory would be a very obstinate personage if they were to produce no effect upon him. The tone of the letters may be exceedingly mild. They may be worded as courteously as an invitation to an anniversary dinner. They may be absolutely free from the least suspicion of a threat or a menace. But nevertheless in their cumulative form, representing possibly very many valued customers, the general expression of disapprobation cannot fail to exercise a strong influence in favor of a change in policy or in methods. One letter from an indignant or an aggrieved customer could by no means accomplish such a result. It might be courteously but evasively answered, or a retort in kind might be made, or it might be treated with silent contempt, according to the mood or temperament of the person addressed, but it would probably have no remedial effect. A few scattering letters would perhaps not be much more efficacious. With an outpouring of communications from every locality, however, a totally different condition of affairs results. The grievance assumes high importance. The allegations made are too imposing to be dismissed with scant attention. The subject receives careful consideration, and the advantages of the policy or methods criticised must be very great to be continued. The recipient of such a volume of letters is now thoroughly conscious that from that time forth his actions will be subject to the scrutiny and judgment of very many if not all of his customers. He knows that their attention will be given to the matter more carefully than before, and he must feel that unless they find him acting more in accordance with their expressed wishes than in the past they are likely to take umbrage and transfer their business to a competitor. Even though no hint of such action may be given in any way whatever it is the inevitable deduction from the proceedings. Those engaged in the correspondence may not admit to themselves that they intend to assist in a boycott. They may hold such action in abhorrence. Nevertheless the effect would appear to be precisely the same.

A Connecticut company manufacturing Screw Drivers on attempting to introduce through jobbing channels a radical departure in its line states that it was met with such apathy on the part of the jobber that it decided to create a demand by distributing the samples at the various retail Hardware dealers' conventions. Accordingly, boxes containing two sizes of the Screw Driver were sent to each convention for distribution, with instructions

that retailers who wished to order the goods for their stocks should do so through their jobbers, and if their own jobbers did not carry the goods to communicate with the company, which would put them in connection with some jobber who did. This method of overcoming the traditional policy of jobbing houses to refuse to handle new goods is receiving the commendation of the officers of the various Hardware dealers' associations. One of the greatest complaints that the manufacturers have against the jobbers is that the latter will not buy articles for which a general demand has not been created. In other words, they will only handle business which has been built up for them.

Condition of Trade.

To severe and long continued wintry conditions is attributed a partial slackening of trade after what promised to develop into an increasing volume of business by this time. Spurts of activity occur whenever there is the slightest encouragement for beginning the spring campaign, especially so far as consumption in nearby territory is concerned. The situation is fairly well indicated by the experience of one prominent manufacturing company which is still without carloads of material shipped from comparatively nearby territory as long ago as January 17, but which transportation companies for more or less good reasons are unable to deliver. A confident consensus of belief prevails among producers and distributors alike of a satisfactory trade, contingent on a relaxation of the hampering meteorological difficulties, expressing the belief that with more favorable weather it will soon be a question of obtaining goods. Traveling salesmen report to principals the possession of closely trimmed stocks in the hands of dealers. Prices show few changes of importance other than those already mentioned. Manufacturers of some staple lines confident of the future have prepared themselves with good stocks in reasonable quantities, which they confidently believe will in due course find a profitable market. Locally trade has been more quiet during the past week, although some merchants allude more encouragingly to business in outlying territory. Farther away, the South, hampered by abnormal conditions for which it was especially unprepared, shows diminished buying, the situation being more favorable in the West, Southwest and on the Pacific Coast.

Chicago

The remarkable manner in which the Hardware trade responds to atmospheric changes is illustrated just now. The moment the intense cold loosened its grip on the West and Northwest orders began coming in for Nails and other outdoor products, and the daily rise and fall in the thermometer were reflected in similar fluctuations in trade. A noteworthy fact in this connection is that Poultry Netting and Wire Cloth, which are strictly spring and summer goods, have maintained their strength throughout a record breaking cold season, and this is looked upon as auguring an exceptionally large demand when signs of spring begin to become manifest. From the discussions at the various Hardware conventions it is becoming evident that the Hardwareman realizes that his business has become affected by rapid evolutionary changes and there is less tendency to endeavor to force producers of staples and specialties to limit their distribution to the so-called legitimate Hardware channels. Wide awake dealers are conforming themselves to new conditions and are buying extensively in side lines and specialties. They are gradually coming to a recognition of the fact that profits on staples are necessarily small and that they will have to look to lines not strictly Hardware and to specialties and novelties in the Hardware class to raise

the average of profits on their total sales. This tendency is being reflected in larger sales to Hardware dealers by makers of side lines and specialties than previously and to a greater and greater extent in the displays of such lines at their conventions. As has been stated previously in these reports, spring trade in Stoves and kindred lines is unusually heavy. In spite of the fact that dealers express the belief that Stoves are too high in price, the Stove makers are beginning to agitate the question of making further advances because of the great strength and ruling high prices of pig iron and other materials which enter into the construction of Stoves and Ranges. Agricultural Wrenches have been given a new list, the new prices ranging from \$1 to \$3 a dozen higher than the old. Discounts are unchanged. There is some factor in the market that is making slight concessions on Nails and Wire through brokers, but the concessions are small and the situation is strong.

NOTES ON PRICES.

Wire Nails.—The inability of some mills to get material promptly is interfering to some extent with the maximum production. Filling specifications on contracts and the new business coming in keep the mills well employed. Contracts are restricted to shipments within 60 days from date by the leading mills. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Carload lots to jobbers.....	\$1.80
Carload lots to retailers.....	1.85

New York.—The market continues firm in tone but quiet, requirements being light. Jobbers are experiencing considerable annoyance by delays in transportation from mills. New York quotations are as follows: Single carloads, \$1.99; small lots from store, \$2.05.

Chicago, by Telegraph.—The demand is rising with the temperature and one rarely hears of a cut nowadays. Quotations are as follows: \$1.95, base, in car lots to jobbers; \$2 to retailers, with 5 cents extra for less than car lots from mill.

Pittsburgh.—The Wire Nail mills are having trouble in getting Steel promptly, and for this reason are sometimes unable to run full. The leading mills continue to restrict deliveries on contracts for shipment within 60 days from date. We quote Wire Nails in carloads to jobbers at \$1.80, and in less than carloads at \$1.85, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. off for cash in 10 days.

Cut Nails.—Delays in deliveries are being complained of by jobbers to some extent. Mills are operating largely on contract specifications, as new business is light. Quotations are as follows: Carload lots, \$1.80; less than carload lots to jobbers, \$1.85, and to retailers, \$1.95, f.o.b. Pittsburgh. Iron Cut Nails, for delivery at Pittsburgh, Buffalo and all points west of these cities, 10 cents advance per keg on Cut Steel Nails.

New York.—There is a moderate local business being done, about, however, in the usual proportion to Wire Nails. New York quotations are as follows: Carloads on dock, \$1.94; less than carloads on dock, \$1.99; small lots from store, \$2 to \$2.05.

Chicago, by Telegraph.—A satisfactory buying movement is in force at the following quotations: \$1.95 for car lots to jobbers for Steel Nails; \$2 in car lots to retailers; 5 cents extra for less than car lots, and from 5 to 10 cents extra for Puddled Iron.

Pittsburgh.—New orders are light, the mills running mostly on contracts, on which specifications are coming in at a fairly satisfactory rate. We quote: On carloads, \$1.80, base; less than carloads to jobbers, \$1.80, base; less than carloads to retailers, \$1.90, base, plus carload rate of freight to point of delivery; terms, 60 days, less 2 per cent. off for cash in 10 days. Iron Cut Nails for delivery at Pittsburgh, Buffalo and all points west of these cities are 10 cents a keg higher than above prices.

Barb Wire.—An improvement is noticed in demand with the near approach of spring, and specifications on contract orders are being filled. Quotations are as fol-

lows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Galv.
Jobbers, carload lots.....	\$1.95	\$2.25
Retailers, carload lots.....	2.00	2.30
Retailers, less than carload lots.....	2.10	2.40

Chicago, by Telegraph.—The active demand which has been in evidence for the last two months is becoming more and more urgent as spring approaches. Quotations are as follows: Car lots to jobbers, Painted Wire, \$2.10; Galvanized, \$2.40; car lots to retailers, 5 cents higher; less than car lots, Painted Wire, \$2.25; Galvanized, \$2.55; Staples, Bright, \$2.05; Galvanized, \$2.35.

Pittsburgh.—The mills are quite busy on contracts and are also getting a fair amount of new business. We quote as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Galv.
Jobbers, carload lots.....	\$1.95	\$2.25
Retailers, carload lots.....	2.00	2.30
Retailers, less than carload lots.....	2.10	2.40

Smooth Fence Wire.—New business is of good volume and shipments are being made on the heavy orders placed with the mills during the last month of 1904 and the first month of the present year. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads.....	\$1.65
Retailers, carloads.....	1.70

The above prices are for base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances, as follows:

	6 to 9	10	11	12	12½	13	14	15	16
Annealed.....Base.	\$0.05	.10	.15	.25	.35	.45	.55		
Galvanized...Base.	\$0.30	.35	.40	.45	.55	.65	1.05	1.15	

Chicago, by Telegraph.—Mills are fully employed and in some cases are several weeks behind their orders. Prices are unchanged, and quotations are as follows: \$1.80, base, for Annealed Wire, in car lots to jobbers; \$1.85 in car lots to retailers, with 5 cents advance for less than car lots, and 30 cents premium over Annealed for Galvanized.

Pittsburgh.—New buying is fairly active, but most leading consumers bought heavily in December and January and are now specifying on these contracts. The mills are hampered somewhat in operation by scarcity of steel and in making shipments by lack of cars and cold weather. Official prices are being rigidly observed. We quote as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads.....	\$1.65
Retailers, carloads.....	1.70

Agricultural Wrenches.—Under date of February 15 the Wrench Association announced an advance in the list prices of Agricultural Wrenches, amounting from \$1 to \$3 per dozen, according to size. The discount remains unchanged. New list prices are as follows:

	Inches.	6	8	10	12	15
Black	\$10.00	12.00	14.00	17.00	24.00	
Bright	\$12.00	14.00	16.00	19.00	27.00	

Tacks.—A number of the principal Tack manufacturers have made advances in the price of their product. The increased cost of material which enters into the manufacture of these goods has rendered higher prices necessary. It is understood that the advance is only in keeping with the general tone of the market.

Paris Green.—Market conditions show little change. The schedule of prices announced early in the season is unchanged and demand continues moderate. Quotations are as follows:

	Per lb.
Arsenic kegs.....	.12 c.
Kegs, 100 to 175 pounds.....	12½c.
Kits, 14, 28 and 56 pounds.....	13½c.
Boxes, 2 and 5 pounds.....	13½c.
Boxes, 1 pound.....	14 c.
Boxes, ½ pound.....	15 c.
Boxes, ¼ pound.....	16 c.

These prices are subject to the following differentials:

	Extra.
5000 to 10,000 pounds.....	¼c.
1000 to 5000 pounds.....	1 c.
500 to 1000 pounds.....	1½c.
Less than 500 pounds.....	2 c.

Rope.—A break of $\frac{1}{4}$ cent in the price of No. 2 Sisal Rope has occurred, but the view is expressed that the price may soon be put back to the old figure. With this exception the market is holding well, although demand is not very heavy. Quotations are as follows: Pure Manila, $11\frac{1}{4}$ to 12 cents; Pure Sisal, 10 cents; No. 2 quality Sisal, $7\frac{3}{4}$ to 8 cents per pound.

Oil.—*Linseed.*—The present situation appears to be that the leading interest is keeping down the price of Oil and keeping up the price of seed. Independent crushers claim that there is no profit at the present prices of Seed and Oil. Some crushers of State and Western Oil are refusing to take contracts at 41 cents for Raw. As natural conditions are not ruling it is impossible to forecast the market, though the general opinion is that prices will be higher before long. Demand is confined largely to orders for small lots to cover immediate requirements. Quotations are as follows: City Raw, 43 to 44 cents, according to quantity; State and Western, 41 cents per gallon, for large or small quantities.

Spirits Turpentine.—Demand is light, owing partially to the difficulty of making deliveries caused by weather conditions. Reports from the South are to the effect that but little business is being done. The market has eased off about 1 cent per gallon since our report last week. New York quotations, according to quantity, are as follows: Oil barrels, 54 to $54\frac{1}{2}$ cents; machine made barrels, $54\frac{1}{2}$ to 55 cents per gallon.

PENNSYLVANIA RETAIL HARDWARE DEALERS' ASSOCIATION.

(By Telegraph.)

THE fourth annual convention of the Pennsylvania Retail Hardware Dealers' Association was called to order at 11 o'clock this (Tuesday) morning by Joseph M. Selheimer of Lewistown, president, J. E. Digby of McKees Rocks occupying his usual place as secretary. The convention is being held in the Board of Trade, Harrisburg. The fact that to-day is election day in Pennsylvania has interfered with the attendance, which is light at the first session, but large accessions are expected for the afternoon and to-morrow's sessions. This afternoon the Mayor of Harrisburg will welcome the association members to the city. The afternoon session will practically mark the opening of the convention, as no business of importance was transacted this forenoon, and adjournment until 1.30 o'clock soon followed the assembling of the merchants.

Secretary's Report.

Following are extracts from the annual report of Secretary J. E. Digby:

I have the pleasure to report the accession of 82 new names to our list of membership. We had 119 names at our last convention, so that at present writing our total enrollment is 201.

Your secretary only had the pleasure of remitting to the National Association for last year's per capita \$82, only that many members having paid their dues. Sixty-four of the new members did not pay any dues into the association for last year, leaving 54 members who failed to pay their dues for 1904. The secretary has notified them and urged them to pay, and will ask permission to suspend all those members who fail to pay their dues.

About 2000 communications were mailed by the Secretary and he paid a visit to the insurance department and the president of the association in reference to a solicitor. In pursuance of a resolution of the Executive Committee, a solicitor was employed to canvass for members and insurance, the result being the adding of 64 names to our membership and considerable new insurance. Fourteen of the new members have paid their dues for 1905, one has died, two have resigned, and the balance I am still expecting to hear from.

All bills have been paid, as well as the secretary's salary to January 1, 1905, and our per capita to the

National Association. The funds advanced by the guarantors in 1903 to pay solicitor's salary and the \$50 advanced by the secretary for the same purpose have all been repaid, and we start with money on hand to meet our expenses.

Let us strive to double our membership this year, and we can more than do so if each member will do his part.



J. E. DIGBY.

Just as soon as our membership will justify, manufacturers and jobbers will have their agents attend our meetings, and the display of articles will more than repay any Hardware dealer for his time and money spent in attending the meeting.

THE firm of Page, Dennis & Co., 341 Broadway, New York, which has been in existence for many years as agent for the Howe Scale Company of Vermont, has been succeeded by a corporation under the title of the Howe Scale Company of New York, with W. C. Page, president; John A. Mead, Rutland, Vt., vice-president; C. B. Hinsman, Rutland, Vt., secretary, and W. F. Lewis, New York, treasurer.

JOHN A. MANSON of the Hardware firm of John A. Manson & Co., Burlington, Vt., arrived home last week from a 10 weeks' pleasure trip abroad. Mr. Manson, who was accompanied by his wife, visited Scotland, where he was born; Ireland, England, France, Switzerland and Italy.

THE HERBERT BRUSH MFG. COMPANY, with main office and factory at Kingston, N. Y., and which has been making Brushes for more than a third of a century, has opened a New York office at 105 Chambers street, in charge of J. F. Herbert, Jr. The company makes a very extensive line of Brushes and at the New York branch will carry a full line of samples.

The Kiefer-Haessler Hardware Company has been organized at Milwaukee, Wis., to succeed the Kiefer Hardware Company, with a capital stock of \$25,000 and A. L. Kiefer, Anastasia Kiefer, Herman F. Haessler and Lina E. Haessler as incorporators. The company has recently doubled its frontage and floor space.

Marvin Hardware Company, Oregon, Wis., has been incorporated with a capital stock of \$15,000, to conduct the retail business in Shelf and Heavy Hardware, Stoves and Tinware, Sporting Goods, &c.

Minnesota Retail Hardware Association.

As we go to press the Minnesota Hardware merchants are assembling for their ninth annual convention, which this year is being held at Duluth. Arrangements have been made for a meeting which will doubtless prove as interesting and enjoyable as any in the brilliant series of conventions held by this, the largest of State retail Hardware associations, with its membership approximating 650 of the most enterprising merchants in the State. We give below, in part, two of the papers which will be read before the convention:

Advertising a Hardware Store in a Country Town.

BY C. H. CASEY, JORDAN, MINN.

The first question is, Does it pay to advertise in small towns? The answer to this may be found in the methods of the mail order houses. They do not advertise in the large cities; they strike the small towns. They describe their goods, not to the city people, but to the people in the small towns and country, and they get results. If the retail Hardwareman will take his cue from this and go at the people right, mean business in advertising and make a business of it, he will succeed. When the city graft



C. H. CASEY.

houses stop advertising through the territory covered by your home paper you may conclude that advertising in a small town don't pay, but so long as they are getting business right out from under your noses, getting cash for goods not as good as you sell on time, you cannot say that advertising does not pay. The same people who are willing to follow their ads. will read yours if you give them something worth reading. Put in something that means something, keep it fresh, and the results will justify the statement that advertising does pay in towns large or small.

There is, however, a vast difference in the style of writing an advertisement for a large concern in a large town and the local dealer in a country town. The man living in a town of 5000 inhabitants or less talks in his advertising to people he knows personally and to people who know him personally. The large retailer in Chicago or New York talks impersonally to some hundreds of thousands of people whom he does not know and who do not know him personally. In this case it's the business that is addressing the public, but in your case it is the "man" that is the chief factor.

My belief is, and always has been, that if a thing is worth doing at all it is worth doing well, and I believe that this applies as directly to the advertising of your store and your business as anything one could think of. If you are going to spend money at all, spend enough and apply it in a way that will attract attention, or what you

do spend will be practically a waste. Some people advertise as though they felt they ought to help the printer support his family, but as a rule those merchants don't help him much and are very much dissatisfied with the results themselves. When you buy a large advertising space you perhaps get it a little less per square inch than if you bought a small space, but it is worth much more per inch to you; that is, ten inches will probably be worth to the advertiser three or four times as much as a five-inch space.

TO START RIGHT IN ADVERTISING

requires a certain amount of "sand." To put out a goodly quantity of your hard-earned dollars that are already safe in your pocket or in bank, and seek in exchange what might be called an unknown quantity takes grit and faith, both in your ability to write convincing, pulling ads. and in the results in dollars and cents. Here is, I believe, where many a merchant "falls down." He is solicited by the local newspaper man for an ad., he asks what it will cost, and, being told, hesitates and thinks of how good that money is, of the nice things he could buy with it, or perhaps of how hard he had to work and scheme to make it, but finally decides to take a few dollars' worth of space and see what he gets out of it. The consequence is he gets little or nothing in the way of benefit from his investment, because he didn't spend enough or keep at it long enough to be noticed. Very often that merchant never has the courage to try advertising again, or if he did it was in the same half-hearted way and at intervals so far between that his former efforts were entirely forgotten before the next one arrived. This man might just as well have cut out his advertising entirely and saved the little money he did spend.

Appropriate enough money to make yourself felt in your community, divide this appropriation among newspapers, circulars, calendars, booklets, novelties or anything else that appeals to your judgment as being good, but keep at it, don't let up or all you have spent in the past will soon be lost. People forget your business awfully quick nowadays with the great volume of advertising matter that is being distributed in every way, and unless you hang on with bulldog tenacity you will be "down and out" so far as results are concerned.

IN REGARD TO DISTRIBUTING ADVERTISING MATTER

I think many merchants make the mistake of being "penny wise and pound foolish." They buy or get up a piece of advertising that in itself is very worthy, and make the mistake of trying to get it into their customers' hands by handing it to them as they come into the store. This soon becomes an old thing, clerks get careless, even you forget it yourself, and the result is that perhaps not much more than half the edition ever gets farther than the office or a shelf under the counter until it's old and out of date. And of what you do get out only a small fraction is appreciated as it should be, from the fact that your customer received it at a time when, to him, he had more important things on his mind. If you get up a booklet or a calendar that is worth giving at all (and it is useless to get any other kind) it is worth the trouble and expense of sending it to your customer through the mail. Deliver it right into his house, where he is bound to pick it up and look it over, and in all probability when he is in the best frame of mind. Thus he will form the most favorable opinion of you and your business.

With such advertising you ought to send a nicely written letter, calling his attention to it and to any other matter connected with your business. I have found this extremely good in sending out my annual calendar at the beginning of the year. It affords you the opportunity to thank your customers for the business they have given you during the previous year, shows that you appreciate it, and you can express the hope that their account will be largely increased during the coming season.

MAILING LISTS.

In my own business I have, and keep up, several mailing lists, which we use in sending out advertising matter. We have one list that contains the names of the head of every family in the territory from which we draw trade. This we use for general advertising, such as circulars and booklets. We have another that contains the name of every person with whom we have done business, or with whom we feel that we should do business, which is used in distributing calendars and more expensive advertising. Then we have lists of carpenters, threshermen, wellmen, town and school officers, &c., and use them when we have anything that is especially interesting to them. One thing I have done in this line that all of you may not have thought of; that is when I get up an especially good ad., one that appeals to a certain class, I have the printer take this out (I am speaking of a newspaper ad. now), put a nice border around it and run off a few hundred of them, then mail them direct to the persons most interested. For instance, you get up a good, strong ad. on Belting and Fittings and you mail them in the manner I have described to every thresherman, creameryman or millman in your territory and the chances are you will get good results and with a minimum of expense.

TRUTHFUL ADVERTISING.

As I started out to say, make your advertising truthful. Do not announce "bargains" in glaring headlines unless you have bargains, for perhaps your competitor down the street is offering the public the same or better goods at as low or lower price and not making a fuss about it. Your customers will soon begin to doubt all your advertisements, and even your personal talks, and it will leave you in really worse shape than if you had not advertised at all. Tell your trade just what your goods are and what you propose to do, and when the time comes do it.

In my judgment an error with many merchants who are considered good advertisers is that they show too much anxiety to sell. There is an apparent fear that those who read may not come to buy, an uncertainty lest what the advertiser says will not be believed. They assert almost as if with tears in their eyes that "this store is an honest store," that "people who deal with us will not be cheated," that "we will treat you square," and other words to the same effect. When one is continually bellowing about his honesty it gives you the feeling that perhaps it's just as well to keep one hand on your pocket-book and the other on your watch, or even send for the police. In other words, honesty rarely needs to make an assertion of virtue. You get the public to your store by general publicity, and fair dealing, good merchandise and low prices will speak for themselves.

YOUR SHOW WINDOWS

are one of your best and at the same time very cheapest advertising mediums, and you ought to give them all the time and what little expense they require to keep them in the very best of shape. Keep them clean and neatly arranged with seasonable and attractive goods. If you have anything new that the ordinary passer-by would not understand, put in a card with it explaining it.

Putting price cards in your window on the average line of goods and naming prices in your newspaper advertisements are points in the advertising business upon which experts disagree, and you may take my opinion for just what you think it's worth. I have never been much of a hand for doing either, and whether I would have been more of a success as an advertiser had I done more of it has always been a question with me. In a country town, where people usually look around in all the stores before they buy anything of consequence, it has always occurred to me that you place yourself at a disadvantage by pricing your goods in a public way like this. When Mr. Customer goes into your competitor's store and asks for the particular article that you have just advertised at a certain price your competitor naturally presumes that the customer has seen your ad. and price and he goes to work with all his energy to convey the idea that he is selling at a lower price than you are; for

proof, he can point to your ad., at the same time quoting a price a little lower than you have named. I have known cases where this was successfully worked. I usually watch for such ads. that quote prices that are about the same or higher than we are selling at, clip them out and have them in evidence when the occasion requires. Then, again, the intending purchaser will naturally figure that as he knows your price on the article wanted it is proper strategy for him to see the other fellow, with the result that he may buy before you get to see him, while if your ad. had contained everything except the price you would surely have had the chance to talk to him; besides, your competitor would not have the proof of your price. Certainly lines that you control or new goods that you are just introducing may be priced to good advantage. This may work differently in different localities and under different conditions, but, generally speaking, public pricing has not been a rousing success with me.

THE WAY IN WHICH YOU KEEP YOUR STOCK AND STORE

and the manner in which you treat your patrons are points in the advertising of a business that should not be overlooked. As a rule people like to buy goods where they are kept in nice, clean, attractive style, and will go blocks out of their way to get even a small article at a store that is so kept and where they try to make you feel at home and show an appreciation of your business. When you advertise a new article and invite people in to see it don't act half angry because they fail to buy; show it to them cheerfully, give them the glad hand when they are going, impress upon them the fact that you are pleased that they called and urge them to come again. Good or bad impressions made upon your visitors at such times remain in their minds for many months, or even years, and ripen into existence for your benefit or otherwise when perhaps you least expect it.

QUALITY RATHER THAN PRICE.

In my limited experience I have found it pays best to advertise quality rather than price. People who buy goods simply because they are low priced are seldom permanent trade; they go where prices are lowest. Such people can almost always be fooled on quality, and they usually are. If your competitor quotes lower prices than you, such trade will go to him instead of to you, and you cannot always be quoting lower and lower prices. The store that gets trade which is drawn by the assurance and attraction of quality is likely to be the one that gets the permanent trade, and the permanent trade is the valuable trade. This fact does not require argument or explanation to any wideawake merchant, and it emphasizes the importance of talking to your people about the goods and the personality of the business. Get your reputation established as a dispenser of goods of first quality and your path will be easier, your profits more stable and your business more secure.

Co-operation.

BY JESSE A. GREGG, NICOLS, DEAN & GREGG, ST. PAUL.

I should define co-operation as the working together of two or more persons for a desired end. What is the end desired? A noted German professor recently said that man had only two passions—to get and beget. Gratify these two and the man did not care what else happened. But his ruling passion was to reach out, get enough to live on and something more. This is surely true in a business sense, and I believe that to-day the greatest factor in successful business is co-operation—for, remember, success is relative—and oftentimes the man who makes a success of a small business is entitled to more credit than he who handles a large one. First, there is and should be close co-operation between the jobber and the retailer, and the relations should be very close. They are mutually dependent one on the other. When you have bad crops or a hailstorm or some disaster who is as prompt to help as your jobber? And when the jobber has a large note coming due and lets it be known, the retailer is quick to respond. Then you have a close customer and are figuring on a large bill against a catalogue house. You send the bill to your jobber and state the facts. Did he ever refuse to help you out? I think not! So let there be close co-operation between you and the

jobber; and I cannot refrain from adding one word more—your friend is the jobber who lives near you and knows you.

BUT THE MOST IMPORTANT CO-OPERATION

is with your competitor. A friend of mine went out in Montana over a year ago and bought out a Hardware stock. It was in a good town, and there were three stocks and no co-operation. Result—no one gathered to himself a living, much less any shekels. My friend, after a thorough investigation, invited the other two to his house for dinner, and after dinner, when the cigars were going well, he laid his facts before them. Result—the first of January last each store declared a 10 per cent. dividend and put a little to surplus account. I have been in business here for nearly 35 years, and I have seen many men start in business, both jobbers and retailers, with the idea that they could buy and sell goods cheaper than their competitors, and I have seen them all go out of business; some would sell out, some would go through the bankruptcy court, and some through a trusteeship, but they all went. I don't think there is a merchant before me who does not believe that the State association is a good thing, and that you learn enough every time you get together to repay you ten times over the expense, and



JESSE A. GREGG.

yet you do not make selling prices or enter into combinations. I should say that local associations of your own town or your own country would be of many times more advantage to you, even though you never mentioned prices.

LOCAL ASSOCIATIONS.

There should be in every local association a credit list. The local butcher associations through the country have this down pat, and you should learn from them. But the great good you will get from local associations is that it will put you on terms of good fellowship with your competitor, and when you get well acquainted with that same competitor you will find that instead of having horns and a cloven hoof he is a good deal like yourself, and that he is as anxious as you are to "get" something—that he is glad to know that your price on Nails is \$3, because Tom Jones told him yesterday you had quoted him Nails at \$2.85.

To illustrate: I was in a retail Hardware store in one of the larger towns in the State, talking with the proprietor, when Sam Brown came in and wanted a price on a ton of Barbed Wire. He got the price, and said: "Well, I will look around, and if I cannot do any better I will come back." Sam went out, and my friend called up his strongest competitor over the telephone and said: "Sam Brown was just in here and I quoted him \$3.25 on a ton of Barbed Wire; good bye." That was all. But I know one thing, and that is, those two merchants are "getting."

PRICES.

May I be pardoned for getting a very short distance away from my topic and talking about prices? When I go into a store and see mottoes on the wall about a "nimble penny" and "Goods well bought are half sold," I know that merchant is not up to date, and I say to you that too much attention is paid to the buying, by both the jobber and the retailer, and not enough to the selling prices. How many items in your store are selling 10, 15 or 20 per cent. less than you could get, if you only would take the time to look it up and make a study of it?

THE VALUE OF WINDOW DISPLAYS.

BY OBSERVER.

THE window display is one of the best and least expensive advertising mediums at the disposal of storekeepers. This fact is forcibly borne out by the wonderful improvement in the art of window trimming noticeable during the last few years. No storekeeper can afford to overlook this avenue of income.

Vague Excuses.

Some Hardwaremen will tell you that goods deteriorate when exposed in window displays, or that they themselves have no knack of window trimming, and there is no one in the store who possesses that ability. Yes, goods are damaged in window displays, but not to any great extent if they are properly cared for, and the displays are changed frequently. Personal inability to trim windows on the part of the merchant is a lame excuse, and the fact that there is no one else in the store with a knack of window trimming is the worst subterfuge of all. These excuses are deceiving the merchant himself, for they are causing him to lose hundred of dollars' worth of trade which he might obtain by means of good, attractive displays.

If You Can't Trim Get Some One Who Can.

The Hardwareman who is getting along without good displays, both in his window and inside the store, is like a one-legged man hopping along without a crutch. If he is prosperous he can become more so by using this splendid medium of advertising. If his business is not in a thoroughly good condition the chances are that his failure to take advantage of such opportunities is to a great extent responsible for it.

If the business is not large enough to employ a man especially for this work, it is usually not difficult to find some one with ability in this direction who is willing to act as a clerk as well.

Poor Displays Are Harmful.

Careless displays and slovenly windows do incalculable harm to a business. The ill effect cannot be figured in dollars and cents. They are worse than no displays at all. They keep people out of the store who would be brought into it by the right kind of an effort. Besides that, they give the impression of careless management, which creates a feeling of distrust in the public mind. If there is any one thing a merchant needs more than anything else to attain success it is the confidence of the public.

Change Displays Often.

No matter how good a display may be it should not be allowed to stand for more than a few days. Frequent changes prevent the damaging of goods by exposure and they make the effort far more profitable. Timeliness is another important feature. The display should have direct bearing upon the needs of the public at the time it is shown. The judgment of the merchant himself and the trade conditions prevailing in his locality make the best criterion for determining the nature of the showing.

Take Example from Department Stores.

Though most Hardwaremen dislike to do it, they could learn very much from the methods of the modern department store in this direction. True, the department store is a thorn in the side of most specialty merchants, but nevertheless if the Hardwareman would study some of the better methods of trade getting prevailing in these stores he could adapt many things of great benefit to his business. These establishments pay large salaries to

men who do nothing else but trim windows and do interior decorating. After all, the modern department store is nothing but a big, old fashioned country store in which everything under the sun is sold. The difference lies in

the system and methods which characterize the management.

Remember the old saying, "Fight the devil with fire." Begin to-morrow by improving your window displays.

Missouri Retail Hardware and Stove Dealers' Association.

(By Telegraph.)

THE seventh annual convention of the Missouri Retail Hardware and Stove Dealers' Association held its opening session this (Tuesday) morning in the Commercial Club Rooms, St. Joseph, Mo. The meeting was called to order at 10.55 o'clock, President Taylor Frier presiding. The visitors were welcomed to the city in short speeches by E. C. Beeves in behalf of Mayor Spratt; E. A. King, who voiced the pleasure of the Commercial Club in entertaining the Hardwaremen, and M. D. Ayers of the St. Joseph Hardware Dealers' Association. President Frier responded in a few well chosen remarks and then announced that the following convention committees had been appointed:

PRESS: M. D. Ayers, S. P. Johnson, Fred Neudorff, J. S. Boehl.

RESOLUTIONS: W. T. Shoop, G. L. Phillips, F. P. Haus, F. P. Wengert, R. H. Meyers.

MEMBERSHIP: F. P. Haus, W. C. Post, G. A. Pauly, W. Hinde.

J. Erickson was appointed sergeant-at-arms.

After President Frier had made his annual address and Fred Neudorff had read his report as secretary the morning session adjourned. To-night a banquet will be held at the Metropole Hotel.

President Frier's Address.

Following was President Frier's address in part:

As we have arrived at another milestone in the existence of our association it is fitting that some of the benefits of co-operation should receive due recognition in its share of good to the cause of the legitimate retail Hardware interest. We can justly join with pride and look back upon the year just closed with satisfaction and gratification, and as an augury for still greater results to follow in the years to come. The year just closed shows our association to represent a body of loyal men, nearly 200 strong, who realize and enjoy its benefits and gladly bear its burdens.

We are living in an era when if any dealer expects to keep abreast of the times, he must give more attention to organized efforts, especially when we note the progress that has been made in other lines by the same agency. We, as Hardware merchants, should take a retrospective view of the conditions of the trade that existed in this State prior to our organization and compare it with the conditions of to-day. Those of us who are members and have kept in touch with the association realize and know there has been a vast improvement, therefore it is the manifest duty of each of us who are members to assist in interesting the dealers in this State who are not members and as yet have not contributed any of their thought, energy or means to bring about this result. Those who, with myself, were present at the first organization of this association know full well that at the time we not only did not have the assistance and sympathy of the jobbers and manufacturers of the country, but, on the contrary, we might say we were looked upon with suspicion and as a thing that should be carefully avoided. What are the conditions to-day in this respect? The National Hardware Association, composed of jobbers and manufacturers, and the Southern Jobbers' Association are working hand in hand with the National Retail Hardware Dealers' Association, of which we are part, for the common good.

THE WORST ENEMY TO LEGITIMATE BUSINESS

that we retail Hardware merchants have to come in contact with is catalogue house competition. There was

created during the past year a joint committee appointed from the National Hardware Association, the Southern Hardware Jobbers' Association and the National Retail Hardware Dealers' Association. These three committees organized what is termed the Wholesale and Retail Hardware Joint Committee, for the purpose of considering this question and at the same time to take some action looking to the co-operation of the manufacturers and jobbers in lining up all who were in favor of legitimate trade as in opposition to this incubus that has fastened itself upon the retail interests of our country.

The result of the work of this joint committee was given in a report to the National Hardware Association during the month of November, 1904. Said report discloses that by correspondence and personal visitation the committee has secured the signatures and published a list of 531 manufacturers who say they do not and will not sell their goods to catalogue houses. The jobbers also realize fully that their business is jeopardized as well as ours, and hence they are almost a unit on the proposition to eliminate the catalogue houses.

I wish to state that the trade at large in my judgment owes a debt of gratitude to this Joint Committee for the work that they have done during the past year. I believe as an organization we should pass a resolution commending them for their work, and request that the same committee be continued from the different associations for future work along the same line. Let us not only commend them for their work, but work in harmony with this committee, giving them our hearty co-operation, not only as individuals but as an association. In buying goods let it be the purpose of every one to buy only from such as are with us in this fight. In other words, if we know of a manufacturer or jobber who refuses to stand with us on a proposition of this kind, notwithstanding his prices may be as low or lower than those who do stand with us, let us give the preference to the firm which is ready to co-operate with us in eliminating this evil.

This committee recommends that State associations use their efforts to have the members of said associations as well as all retail Hardware merchants organize committees in their several towns to investigate the quantity of goods being shipped into these committees' own towns, obtaining the names of such buyers, and then use all proper means and methods to keep such business at home. I strongly commend this to your attention, and hope that at this session we shall take steps to carry out this recommendation.

ASSOCIATION GROWTH.

You no doubt will be pleased to know that our association has made some progress during the past year. Am glad to say that our growth in membership will show an increase of at least 25 per cent. While this is no doubt gratifying to you as well as your officers, at the same time we feel that it has not been what the association deserves. Strenuous efforts have been put forth by your secretary and the officers to interest the dealers in this State, and while we are glad to report the results as stated above, at the same time we feel that they are not what could be accomplished if we had the hearty co-operation of the membership. How to arouse an interest in the membership and get their co-operation is one of the problems that your officers would like to see solved by this convention.

I desire to again appeal to the membership that we co-operate with each other for the mutual advancement of our association and in making it one of the foremost of State organizations. This much desired end is not only mutual business interest, but implants in the hearts of

our brother dealers a recognition of the fact that we do not live to ourselves in any of the relationships of life and that we are to a certain extent our brother's keeper, and should therefore work for and in the interest of the universal brotherhood of man.

Let me indulge in the hope that during the present year each of our fellow members will take it upon himself to add at least one dealer to our growing ranks and thus confer upon such new member an opportunity to secure the benefits, satisfy the conscience, extend ease to the mind, and help to banish worry and care forever, and thus constitute a boon to his home and family. May the progress of our organization continue as it has and may Onward and Upward remain our inspiring watchword.

A BUDGET OF LETTERS FROM MANUFACTURERS ON SPECIAL BRANDS.

REASON FOR ENCOURAGEMENT.

From an Indiana Manufacturer: It is very encouraging to see that manufacturers are awakening to the fact that when they spend their time and energy making jobbers' special brands they are accomplishing nothing for themselves outside of perhaps a little profit on the goods, and that the same amount of powder spent in exploiting their own brands would be more to their benefit in the long run.

MISLEADING IN QUALITY.

From Manufacturers of Paints: We are opposed to special brands, because as a rule they are all misleading, so far as quality is concerned. We think a reputable jobber makes a mistake when he handles goods under his own brand that are manufactured by others, for in the majority of cases the quality of special brands is very much inferior to that which the manufacturer puts up under his own label. If the jobbers handle manufacturers' brands they assume no responsibility themselves as to quality, as they can then make claim on the manufacturer in case of complaint.

TURNING DOWN A SUGGESTION.

From an Eastern Manufacturer: Jobbers almost invariably want the lowest grades made under special brands instead of the highest grades. We have never refused to put a special brand on a high grade article, but whenever we have suggested to the jobbers that they have special brands made in the highest grades they have invariably turned the proposition down on the ground that the cost of such a grade would be too high to sell under a special brand.

NOT PROFITABLE FOR THE MAKER.

From a Michigan Manufacturer: We do not look upon special brands with any great favor, as the execution of orders upsets to a certain extent the routine of our factory. As far as we are concerned, we like to avoid making special brands. We find, however, that we are obliged to do so and we have a good deal of this work from time to time. Of course the customer is obliged to pay the initial expense, but there is no doubt the goods are not made at as good a profit to us as are regular goods, inasmuch as they are often called for in smaller quantities than we originally agreed upon, and rather than offend the customer we execute the order.

From the standpoint of the customer, we do not think

there is much gained, as we believe that the reputation we have on our goods sells them quicker under our own brand than under the brand of our customers. We should be very glad if this practice could be eliminated.

A VALUABLE ASSET.

From a New York State Manufacturer: Manufacturers seems to be waking up to the fact that in meeting the demand for special brands they are giving away one of their most valuable assets. I do not think it shows good business judgment if a manufacturer turns out good goods to let any one else have the benefit of his efforts and advertising.

A VICIOUS POLICY.

From an Indiana Manufacturer: The making of special brands by the manufacturer and the carrying of special brands by jobbers we think is a bad and losing policy all around. It delays factory operations, calls for increased storage capacity, and therefore means an additional cost for which somebody has got to pay. The end sought to be obtained by the jobber is an individual or special advertisement of his house, but we very seriously doubt that this affords any advantage. The general public are inclined to the purchase of well-known articles of manufacture bearing the name of those well established in their particular lines, and when a purchaser finds a special brand put out by a firm which is not in the manufacturing business he is apt to believe that the article is lacking in some respects and that the manufacturer hesitates to recommend the merits of the article with his own name. While for the first year or two a jobber may be able to buy his special brand at as low a price as the same article is sold under the manufacturers' regular brand, he will find that after a few years the manufacturer is sure to add on the extra cost, which is a certain incident to the special brand, and the jobber will feel compelled to pay the additional price rather than go to a new article and give up his own brand. One jobber has as much right to ask for a special brand as another, and if every jobber in the country were to demand special brands the responsibility of the manufacturer for an article of worth would be so remote that the elements of quality and efficiency in the article would eventually be much affected.

Suspicious Public

THEIR POSITION.

From an Eastern Manufacturer: We have consistently and continuously refused to put up our product under special brands, although frequently importuned to do so by our friends in the jobbing trade. The position we have taken is based on the assumption that we can make our name fully as valuable to the seller as his own brand would be and that we are entitled to whatever selling profit may accrue from any advantages of construction or strength in advertising which we may have originated. Next to those points, but fully as important, is the fact that special branding and special features materially increase the manufacturing cost, not only by the extra operations and special appliances involved, but by retarding and confusing factory processes, making the work cost more and delaying the uniform daily product of each unit of the machine. Manufacturers

Jobber's Name Is the Quality

who furnish their trade with goods under special brands are usually those who turn out low priced products which the jobbers use in large quantities. The fact is that the jobber purchases the article at a minimum cost to himself, but when he comes to sell it again he expects the retail trade to pay a good price for it because it bears his own brand; in other words, the high quality of the article largely rests in the jobber's name and not in its construction.

Taking Advantage

NUISANCE AND DETRIMENT.

From a Western Manufacturer: Special brands cannot be termed a growing evil. The evil is already a very large and much overgrown one. It has become an intolerable nuisance to manufacturers. From our close observation the past several years we fail to find where in a number of instances it was any benefit to the jobber, but on the contrary has worked harm in many ways. As for the small dealer and the public in general, who must use the goods, we are satisfied they would much prefer them under makers' brands. In fact, we get many letters from individuals asking for information regarding such and such an article, who makes it, &c., generally winding up their remarks with some-

Was the Maker Ashamed?

thing unpleasant about the dealer who sold the article, and finally intimating that perhaps the maker was ashamed to put his name on the goods. We believe special brands should be discouraged by the manufacturer wherever possible. We are doing it and in a number of instances have been able to convince the jobber where it would be to his interest, as well as all concerned, to use more factory brands. We are satisfied that standard goods under makers' brands will win nine times in ten and are what the public want.

TO OVERSELL OR UNDERSELL.

From a Manufacturer in the West: Special brands are an unmitigated evil, and while it is a common practice we do not believe a reputable manufacturer should submit to it. It is only another outcome of the furious competition among the jobbers, as they use special brands in either of two ways—to oversell or undersell the market quotation. The average American does not seem to be content to do a steady, quiet, healthful business, but instead is feverishly anxious to outdo his neighbor and is unduly excited over a trifling disturbance. What a scrimmage it all is, to be sure.

VIEWS OF A WELL-KNOWN MANUFACTURER.

What is a jobber's special brand? In the vernacular of the day, it strikes me as being a fad—and, like all fads, it will have its day. It seems to some observers that its zenith has now been reached, and that it is starting on its return course. And why, you ask? Simply because the dealer is waking up and is studying this and many other questions of vital importance to his business as he has never done before. Thanks to the influence of trade associations, especially retail associations, and the trade press, a great educational movement is

Seeing Things going on among merchants. They are seeing things they never saw before, and they are doing a heap of thinking. The interests of the manufacturer, the jobber, the dealer and the consumer are intertwined, and we are all interdependent upon each other. There is no use in saying it isn't so. Therefore we must all pull together or some one will be hurt more or less.

Now, what are manufacturers here for? To manufacture goods? Oh! yes; but whose goods? Well, that depends upon how long he has been on earth, and how much he cares for the name and reputation of what he makes. If simply a time server, as it were, willing to eke out his little profit—if he has any—and not caring whether the dealer and consumer ever know who or where he is, then, of course, it makes no difference

Worth Pondering

whose name is on his product; but if he has been working for years, beginning at the bottom, and has an established reputation on his brands, or if he is just starting and is ambitious for the future, then he must surely work faithfully and continuously to promote and upbuild that choicest of heritages—a good name—and he cannot afford to run his factory for the benefit of others. The manufacturer

has no bed of roses. It is a long, hard struggle for the best of them.

Now, why does the jobber want his private brands? Their own word for it—more profit. Who pays it? The dealer, I suppose. Doesn't the manufacturer give the jobbers a chance for a fair margin on his (the manufacturer's) brands? Yes, if the jobbers will

The Matter of Profit

take and hold it and not cut each other's throats. The jobber is entitled to a fair profit. The dealer grants that. The jobber is the natural distributor and the manufacturer prefers to sell his goods to him in large quantities, but if the jobber is going to throw the manufacturer's brand over, as some are trying to do, what is to become of the manufacturer's work on his own brands? Must he sit still and say nothing and see his work of years go by the board? Isn't it rather a sad commentary on any manufacturer who has felt compelled at any time to make a private brand for any one and leave his own name off? Just think of it a moment.

I hear some jobber say, "We buy so many thousands of pounds or dozens per year of a certain manufacturer and never change." Does he? On how many items? Some few, perhaps; but on how many more does he shop around for a lower price, and does he give the dealer the benefit of the reduction? And when he gets lower prices on goods that are already cheap enough

What About Quality?

does he expect the quality to be sustained? How many manufacturers to-day are having more or less controversy with their jobbing customers over the question of furnishing fancy labels, wood cuts, &c., for their private brands, without cost to them? More than one, I imagine. Is it not a fact, Mr. Jobber, that while you tell us to put the cost of these items in the price of the goods, that we are not able to get you to pay the price? Have you ever thought of it, Mr. Jobber, that perhaps you are driving the manufacturer more and more every day to solicit the dealer's trade direct by your desire to push your own private brands and eliminate those of the manufacturer? It seems to me that will surely be the result, because the live manufacturer will not allow himself to be run out. Some jobbers are manufacturers, making Saddlery and other lines. What brands do they make? I have never heard of their making private brands for their competitors.

This is a big question, full of food for thought, and the above are my views, and I have reason to think they reflect also the impressions of some other manufacturers.

THE BELKNAP HARDWARE & MFG. COMPANY, Louisville, Ky., was recently awarded the first contract thus far placed by the Panama Commission at Washington for Picks, Shovels and other similar excavating Tools. Bids were received by the Commission from a large number of manufacturers and jobbers all over the country. The Dow Wire Works, also of Louisville, secured a contract amounting to over \$5000 for Wire Screen for the Canal Commission. Much of the Cast Iron Pipe ordered by the Canal Commission is also being made in the Louisville plant of the United States Cast Iron Pipe & Foundry Company. Shipment of these commodities can be made either by boat to New Orleans or by rail at a water rate, goods being transferred at New Orleans to coast steamers that touch Central American and Isthmian points.

John Hulseman, for some years a member of the firm of Wattson & Hulseman, dealers in Hardware and Farm Machinery at Chamberlain, S. D., has sold his interest to Mr. Wattson, who will hereafter have sole charge of the business.

The firm of Schatz & Aman, Hardware dealers, of Marion, S. D., was recently dissolved by mutual consent. The business will in future be conducted by Christ Schatz.

Indiana Retail Hardware Dealers' Association.

(By Telegraph.)

THE sixth annual convention of the Indiana Retail Hardware Dealers' Association, which opens this Tuesday afternoon at 2 o'clock, gives promise of being the best attended and most profitable which this association has ever held. The meetings are to be held in the Denison Hotel, and at this writing the lobbies and parlors are already filled with displays of Hardware, Stoves, Ranges, Paints, &c., and delegates are arriving on every train.

The association has now on its rolls over 600 members, the past year having added from 150 to 200 new members.

This morning's session is being devoted to the payment of dues and reception of new members. A meeting of the Executive Committee is also being held.

This afternoon the Mayor of Indianapolis will welcome the delegates to the city, after which there will be an address by A. F. Sheldon of Chicago, entitled "Business Management and Scientific Salesmanship." Following this address Chas. Smith, president of the Chas. Smith Company, Chicago, will read a paper entitled "Combination Heating." The meeting will then be turned over to the manufacturers, jobbers and traveling men, and this part of the session promises to be very interesting.

This evening the annual smoker will be given in the main dining room of the Denison Hotel. The banquet will take place Wednesday evening at the English Hotel.

Presidential Address.

BY E. M. BUSH, EVANSVILLE, IND.

I can with pleasure congratulate our association upon its progress during the past year, especially upon its increased membership—in round numbers 150—making us now about 600 strong. Very few have fallen from the ranks, which proves that the up-to-date man of to-day knows a good thing when he finds it.

A NOTABLE FEATURE OF THIS YEAR'S INCREASED MEMBERSHIP is that it brings to us many who have just embarked in business or who have moved into new and commodious quarters. That is the kind of man who makes a good member—the man who is going ahead, reaching out, growing. He wants everything at his command which will better equip him for his business life. He recognizes his need of this association and that it is his privilege as well as his duty to join our ranks. Six hundred men of push and purpose mean something; 600 Hardwaremen alert, up to date, banded together in their push and purpose means power—power for the advancement of their own business interests and the interests of the communities in which they live.

But there are men and men; there are even Hardwaremen and Hardwaremen. You would think that such a live, interesting business as Hardware would keep any man awake, but there are Rip Van Winkles in the trade, men who say, "I have run my own business for forty years and can continue to run it without the assistance of associations." Judging from the appearance of their stores and methods they may have been running them for 400 years. This kind of dealer is drying up, falling by the wayside; a more progressive element is pushing him on to his own dust laden shelves. The old saw that it takes all kinds of people to make up a world is my only consolation when I meditate too long on the Hardwaremen out of associations. They are not all asleep; some are only indifferent, some are selfish. To the indifferent merchant let me say, "Learn what association work has done and is doing; learn at the same time what cataloguers are doing to you." To the selfish man, "Do you fear to lose what knowledge you may impart to us? You will gain much more. There are 600 of us and only one of you." Every associate member, I heartily believe, will join me in saying that his association work, in its knowledge gained of ways and methods, of dangers

to avoid and new paths to tread, of men and of times, and especially of Hardware, in its pleasant, profitable hours together and the true friendships formed, has proved of incalculable value to him.

Our trade papers are a great factor in our education. Rip Van Winkle is too fast asleep; Mr. Indifference doesn't care enough, and Mr. Selfish is a little too stingy to pay for, read and digest these papers. So much do I believe that our associations and our trade papers are the great factors in our development and training to the level we must reach to successfully combat the adverse influence in our business life; so much do I believe in these factors of success, that as your retiring presiding officer I would rather leave among you as the impress of my efforts in your behalf growth in the direction of these two great factors for good than in any other direction. And just so far as I have done this in just so far has my labor among you made for success.

It is unnecessary for me to give you a *résumé* of our year's association work; that comes to you from other



E. M. BUSH.

sources. But of a few important steps I have a word for you.

THE JOBBER AND THE RETAILER.

One cause of the formation of this association, as you well know, was the aggression, the poaching, by jobbers upon the legitimate fields of the retailer, selling in many cases directly to the consumer and to dealers in other lines goods which belong to the Hardware line. Were this small beginning the end, who would complain? But before any other than himself is aware of it that outside dealer has added one item after another, until he has a department of profitable Hardware, which he buys to sell a little lower than the legitimate dealer and so advertise his other lines. This is delicate ground I tread. The defense is made that these firms will handle these lines; that if not sold by the nearby jobber there are other sources of supply. As Hardwaremen we do not want to be picayunish, narrow minded; we do not register a very vigorous objection, but does it encourage a dealer to increase his business with the firm whose private brands of goods he finds advertised and displayed in the windows of department stores and pawnbroker shops?

Much of this annoying work comes through the efforts of travelling men to make good records for themselves, increase their commissions, &c. Not enough effort is made by heads of firms to learn if these are legitimate channels of trade. One of our members recently met for the first time the head of a firm of which he is a customer, and in course of conversation remarked upon his representative soliciting trade from pawnbrokers.

This, the gentleman emphatically denied, but, being convinced of his statement by our member, assured him that such sales were contrary to the rules of his house; and these rules have since been enforced. So I suggest to other dealers in Indiana who may know of like sales to pawnbrokers, &c., to report such work to heads of firms, from whom they will doubtless receive relief.

The Hardware retailer is also annoyed and hampered by those jobbers who sell staple and seasonable goods to grocery stores, building Hardware to planing mills, &c. All these things curtail the business of the legitimate Hardware retailer, the jobber's best customer, who has a just right to protest and seek to stem the growing evil. If such houses must have and will sell such goods let them be forced to purchase from others than Hardware jobbing houses, which insist that the manufacturer maintain a differential in their favor and against the interests of the legitimate Hardware dealer, yet leave him to meet and combat this outside competition which the jobber himself has assisted in building up.

THE INSURANCE QUESTION.

The only Executive Committee meeting since our last convention was called in July at the Grand Hotel in this city to consider the question of insurance, which is a matter of such importance that all the officers of the association were summoned, and all were in attendance except Mr. Hall, who was ill. As you are aware, it is exceedingly difficult to form a mutual fire insurance company in Indiana because of the \$50,000 premiums. These premiums are represented by the notes of the membership applying for insurance to the amount of \$40,000 and \$10,000 in cash. Those present last year will recall the effort made during the convention to secure pledges for insurance. This work was vigorously followed up after adjournment by our secretary, but, every effort failing to bring us in sight of success, your officers decided it was useless to push the matter farther at that time. Since, in considering the indorsement and recommendation to our members of one or more mutual Hardware fire insurance companies already in existence, the committee could come to no unanimous agreement, and we adjourned without action, referring the whole matter of insurance to this body now assembled, which must decide as to future attempts to organize an insurance company of our own. I believe I express the unanimous feeling of your officers when I say we question the wisdom of pushing the matter farther.

There are now in successful operation several mutual Hardware fire insurance companies which can write all the insurance our members will take, and is it not better to give our insurance to such companies and add our strength to theirs than to incur the expense of keeping up an insurance company of our own? Will not our savings upon premiums be greater? Is it not better to have a few strong companies than a multiplicity of weaker ones? None of these mutual companies will write a policy unless the applicant is a member of a State Association, and we thus get the same results as though we had an insurance company of our own. I am informed that our membership is now carrying almost \$750,000 insurance in these various mutual companies. Two or three of our members who have had policies with them have had fire losses the past year, which have been promptly and satisfactorily adjusted—more promptly than by old line companies. It is left for you to decide this matter.

CATALOGUE HOUSE COMPETITION.

While many other matters in association work have required our attention and enlisted our interest, the most absorbing topic since last spring has been the catalogue house question, this paramount cause for the formation of retail Hardware associations, the burning question in all discussions.

You have all undoubtedly read the platform of the Wholesale and Retail Hardware Joint Committee, and by trade papers and the *Hardware Bulletin* been informed of such parts of its work as it has seemed wise to publish. You have read, too, the hearty indorsements which

so far its wise actions have received from the National Hardware Association.

I deem this a proper time and place to set aright certain erroneous and mischievous ideas which have crept into the minds of some contributors to the trade papers, whose letters, following Mr. Norvell's in *The Iron Age*, I read carefully. Remember, all I say on this subject comes from me as a retail merchant, a member of your association, not as a member of this joint committee, and for my words I am individually responsible. The idea which I consider especially pernicious is that of a boycott in connection with this matter. No greater mistake could be made, for at no meeting that I have ever attended has such an idea ever been discussed. Not for one moment would it be tolerated by a body of intelligent Hardwaremen. Those who have dressed up this bogie for public inspection must have made him out of their own fears and the knowledge that their goods had not so ready a sale among retailers as in former days. This bogie of these fevered brains teaches its own lesson. Boycott there has not been, is not, and never will be, but jobber as well as retailer knows that just as soon as an article or brand of goods becomes, by reason of the price at which he must sell it, unprofitable to the seller, that man is a fool who does not drop it as soon as possible and push its fellow in which he finds a living profit. We are in business for the money there is in it; will we make it selling goods in which there is no profit?

When a manufacturer, utterly indifferent as to the price at which his goods are to be marketed, sells to catalogue houses, need he be surprised, has he any right to cry "boycott," when jobber and retailer cease to sell his goods which both must handle without profit? Profit in selling goods is the life blood of both wholesaler and retailer and if to keep this blood in his veins the merchant must needs change food and climate, who shall condemn him? We as merchants resent the imputation of boycott and urge that the distinction between it and self-preservation be understood and proclaimed.

Many manufacturers have not yet learned that the catalogues of the two great houses of Chicago are in the hands of or accessible to 85 per cent of the farming communities throughout the West and Middle West, to a wonderful extent in the East, and to almost as great a degree among the city consumers as well. Nor do they realize that once introduced into a community these catalogues practically establish the prices at which articles must be retailed. The retailer is forced to get away from handling goods priced in catalogues at killing prices. When the manufacturer selling to cataloguers finds his sale of goods to jobber and retailer decreasing shall he cry boycott? Rather let him learn at what price his goods are being sold by the cataloguers. Let him put himself in the retailer's place and study the situation. Away with the idea of boycott! It is an insult to our intelligence.

JOBBER'S PRIVATE BRANDS

have recently been receiving considerable attention through the trade press and convention discussions. It is "frenzied merchandising" for manufacturers to sell their established brands to cataloguers, who use them as leaders to exploit goods with which the public is not so familiar. The jobber in his turn is compelled to have private brands, and the retailer, glad to find goods not cut to death by the mail order houses, accepts their sale, advertises and pushes them, and there are many merchants who will testify that this brings good results and perfect satisfaction to customers. Of course no merchant could afford to sell any old private brand simply to be enabled to make a large profit. The goods must have merit before he can afford to touch them. More and more is he being forced into the use of private brands, and I hope to hear this subject thoroughly discussed by the membership.

If you have studied these catalogues for several years you will see that their lines of private brands are rapidly increasing, and it seems to me the most "frenzied" of "frenzied merchandising" for manufacturers to destroy the sale of their established brands with the jobber and

retailer by lending their brands to the upbuilding of the mail order house, which all the time is increasing its own "private brands."

Many manufacturers seem now to fear that should they refuse to sell these houses they will immediately start factories of their own. Not yet; not if they be now checked, for only a few lines do they sell to-day in such volume as to justify factories of their own or taking the entire output of other factories, but help them to multiply their numbers and these fears may well be realized. When the merger or syndicate of mail order houses comes into existence, as we now have the syndicate 10-cent stores, then look out. The only sane thing for the manufacturer is to impede rather than help the mail order house. As has been truly said by others, the two systems of business cannot long exist side by side; one or the other must succumb.

HARDWARE TRADE FELLOWSHIP.

The retailers of this country are to be congratulated upon the fact that these three associations—the manufacturers', the jobbers' and the retailers—have been brought into closer and more friendly relationship. Greater progress has been made in this during the past year than ever before. The retail members of the Wholesale and Retail Hardware Joint Committee were the guests of the National Hardware Association at Atlantic City last November, and with the jobbers were invited by the manufacturers into an open meeting for the discussion of subjects in which these three factors are interested. The Hardware Manufacturers' Association and the National Hardware Association have received from us invitations, which they have accepted, to send representatives to our national meeting in Minneapolis next month. This fellowship and affiliation cannot but be beneficial to all.

On Which Item Does the Success of a Retail Hardware Business Hinge? Is It Quantity Buying, Discounting Bills, Advertising, or What?

BY A. N. SHIDLER, SOUTH BEND, IND.

In its broadest sense success, whether it be mercantile or professional, depends on an intelligent and decisive disposition of a subject when presented. If I ask my attorney, "Is it lawful in Indiana to file a lien on property 63 days after the work on the house is practically completed?" and he says "No, it is not," I am satisfied; if he says "I am not quite sure, but will telephone you at 2 p.m.," I am satisfied; if he says "Why, yes, I think probably it would stick," I am not satisfied and have no confidence in him. He has made no decision and given me no information, not even an opinion. When I show Mr. Black a Cast Iron Hammer for 25 cents he says, "This is guaranteed?" I say, "No, sir, it is cast iron and you may break it in driving a 30d Nail." If Black takes the Hammer he will never return it if it breaks. If I had said in reply to the same question, "Well, I think you will find it all right," three out of six would return the Hammer if broken. There is no better time to settle this return problem than at the time of the sale, and it is so easy to prevent annoyance by being decisive.

Business success depends on the following items. All are of importance, and, in my estimation, in the order in which they are named: Attentiveness to business; buying, which is divided into adherence to certain lines; selection, quantity, quality, price and keeping up stock; marking of goods; credits and collections; display, including windows; advertising, and cash discounts.

ATTENTIVENESS TO BUSINESS.

This I consider of most vital importance. No battles have ever been won without a leader. If you say to your help and the public by your actions that you are at the store at 7 a.m., be there and stay there unless business calls you away (and too many men are inclined to think business calls them away when it does not), then by all means leave instructions where to be found and when you will return, then your patron knows when to call and do business and the traveling man, who is your best friend, can depend on seeing you when he calls. You cannot drive fast horses and automobiles and conduct a Hardware business.

BUYING.

whether for a large or small business, deserves more attention than is generally contributed to it. A line of goods should be carefully selected, giving close attention to the size, different qualities and comparative prices of a similar line, and when the line has been determined on, then buy just as much of this particular manufacturer's make as is consistent. By this I mean, buy your \$4 and \$15 mower from the same manufacturer, and when you run out of a size don't buy the same size of some other make because some one offers it for sale, but send in a mail order and establish a business on this line. You know then what you are selling, your clerk knows what he is selling.

Apply this to your entire purchases and use your best judgment in selecting quality as well as quantity. With the present opportunities to buy goods and facilities for transportation, I would say most emphatically, buy in small quantities and often. The goods are always bright and fresh and with the same investment you are able to show a much larger variety.

As to quality, I cannot express my views better than



A. N. SHIDLER.

in the words of E. C. Simmons, "Recollection of quality remains long after the price is forgotten." The old adage, "Goods well bought are half sold," is true, and while it means much more than the mere price paid, the price should be given close attention and the way to secure the best price is to follow the foregoing suggestion and confine your purchases of a line to one manufacturer or jobber, and if his books show at the end of the year that your purchases have reached a certain amount, you are entitled to a rebate or better price for the ensuing year.

WE KEEP UP STOCK

In a general way—namely, by using the want book and by keeping everlastingly at the help to record what they know is short. To keep closer tab on the fellow who forgets to use the want book, his number is placed before each item which he records, and if No. 6 never discovers any goods short, the want book indicates it. In addition, if we buy Tinware, Wire Goods, Granite Ware, Cutlery, &c., we begin with page 1 in the catalogue, and, when through, we have noted every item the manufacturer makes, as well as having noted the amount of every item on the shelf, and attention has thus been given to every item we carry as well as every one we should add. Do not always wait for the salesman. It requires but a few moments to list the stock of Nails, Shoes, Wire Cloth, or Wheelbarrows, a few moments more to make up the order and the goods coming. You cannot expect to increase sales and meet competition at home and from catalogue houses if you do not have the stock. It is not

always the price that sells the goods or establishes the reputation, but if you have taught the public to say "You will find it at Smith's," your business is on Easy street.

MARKING GOODS.

A great deal of care should be taken in marking goods. Always keep in mind to mark them at what they will bring regardless of the percentage of profit. No more serious mistake can be made than to decide that this line must carry this percentage of profit and that line another. Goods should be marked just as soon as opened, and then place the cost and selling price on every item, even to every Pocket Knife and the blade of each Carver or Butcher Knife. Then you know that the new man is not selling a 50-cent Pocket Knife for 25 cents because it might be lying on a 25-cent box.

CREDITS AND COLLECTIONS

of any business deserve the most careful attention. You must learn to say "No" when there is a question about the customer's ability or desire to pay. Better have him angry before he gets the goods, for he surely will be afterward. It is so easy for men to get cross when they are not inclined to pay.

On the first day of every month our bookkeeper lays a statement of every ledger account on my desk. These are assorted; part are mailed, some are handed to the collector, who is one of the clerks, who presents it in person; to some are written a request and others a demand; others are telephoned, and we always follow up the promises. In making an account we invariably arrange for time when it is to be paid, take the party's exact name and address, and if he does not meet it as agreed we remind him of it through the mails. With this method, which has been followed two years, bad accounts have been decreased very materially.

THE PROPER DISPLAY OF GOODS

is the best advertising I can suggest. Goods must be arranged in classes and sizes, each class graded, and the smallest always nearest the entrance, with the larger in the rear; then all may be seen at a glance by the person entering.

We are at a loss to know why the department store and nickel and dime store have taken so much of our business. It is not because of the price or the stock, but because they place nearly every article on a table. Then it is kept well dusted and systematically arranged, with the price attached in plain figures, and the table becomes the silent salesman; the clerk merely takes the order. The average Hardwareman puts his on the shelf and when called for reluctantly digs it out.

An advertising value can hardly be placed on the window display. It is, if you please, a constant expounder of the firm, its management, stock and general character. A window filled with Vises, Horse Pokes, a few Granite Kettles, a board of Pocket Knives and a Double Barreled Shotgun would attract the attention of neither the mechanic, farmer, small boy, housewife nor the sportsman. The window should be changed and washed once a week. A certain day should be set apart for it, and let the help understand to do nothing outside the necessities until this is done. Begin it early in the morning and do not keep the window torn up in the afternoon.

CASH DISCOUNTS.

No business man can afford not to take advantage of the cash discounts. While the amount of discount will very nearly deliver the goods and is at the rate of 12 per cent. on general Hardware when money is worth 6 per cent., this is not all. You establish a credit which nothing else can give. The unpaid bill file is not filled up and you know just what you owe at all times and thus lighten the burden of your business. But you say you have no money to do this. Then borrow \$1000 for 60 days and give careful attention to collecting and buying, making quantities just as small as possible. The quantities of your purchases must be regulated by your ability to pay.

P. T. Fissel, who for 17 years has been engaged in the Hardware business at Emery, S. D., has transferred the business to Hanlon & Diener.

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OHIO HARDWARE ASSOCIATION.

FRANK A. BARE, secretary, Mansfield, writes as follows relative to the convention of the Ohio Hardware Association next week:

Elaborate preparations are being made by the Dayton people for the entertainment of the Hardwaremen of Ohio. A magnificent souvenir of the occasion is being prepared by the Dayton Hardwaremen. This souvenir is a work of art and reflects credit on the gentlemen who have prepared it. Every Hardwareman will be entitled to one of these elegant souvenirs.

A novel feature of the coming convention will be the Bureau of Information, an entirely new and unique affair, originated by the Dayton Hardwaremen. Every visiting member will register at this bureau and at the same time receive the souvenir of the occasion. The many instructive and businesslike features of this bureau will add greatly to the comfort of the members as well as to the advancement of the convention.

Tuesday evening the delegates and their wives will be entertained at the National Theater, where the Rays will give a splendid performance for our benefit. This noted company will present "A Trip Down the Pike," and as the theater will be given over entirely to the visitors, this feature will prove an unusually attractive one.

The trip through the National Cash Register Company together with the banquet in their banquet hall will be the valuable and enjoyable feature of the coming convention.

The programme is a strong one, the social features complete. Taking all in all the Dayton convention will, from present indications, be a record breaker. Ohio Hardwaremen are very much in earnest in the association work, and are giving enthusiastic support. It is hoped that the large majority of Hardwaremen of the State will be in attendance at this convention.

REQUESTS FOR CATALOGUES, &c.

The trade are given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

REQUESTS for catalogues, price-lists, quotations, &c., have been received from the following houses and are referred to the manufacturers:

FROM E. C. FIE, George, Iowa, who has lately purchased the Hardware business of H. W. Reints.

FROM E. E. BROWN, Lizton, Ind., who has bought out the Hardware business formerly conducted by Deatley & Spangler.

FROM R. HAMMER HARDWARE COMPANY, Hillsboro, Wis., which has been incorporated with a capital of \$5100 to conduct a retail business in Shelf and Heavy Hardware, Stoves and Tinware, Agricultural Implements, Paints and Oils, Sporting Goods, Buggies, Wagons, &c.

FROM THE IDEAL HARDWARE & COMMISSION COMPANY, Goldsboro, N. C., which has recently been incorporated with a paid in capital of \$10,500, and with the following officers: W. H. Huggins, president; Geo. W. Baker, vice-president, and J. Wash. Blizzell, secretary and treasurer. The company is successor to W. H. Huggins, and will continue the wholesale and retail business in Hardware, Implements, Stoves, Paints, House Furnishings, &c.

FROM SHORT & WILDING, Malone, N. Y., who have succeeded Short, Wilding & Co., I. M. Chase having retired. The firm is a wholesaler of Shelf and Heavy Hardware, Tinware, Sporting Goods, Building Materials, &c., and will carry a heavier stock and cover more territory than heretofore.

FROM STEPHENS BROS., Woodhull, Ill., who have lately opened up in business carrying Shelf and Heavy Hardware, Stoves, Paints, Sporting Goods, &c., as successors to McKeever Hardware Company.

FROM NEVINS & FRAMPTON, Easton, Md., dealers in Hardware, Implements, Harness, Stoves, Seeds, &c.

FROM ABERDEEN HARDWARE COMPANY, Aberdeen, N. D. N. Gelb, formerly of St. Cloud, Minn., is now proprietor of this business, having bought out J. J. McCaughy and others. Mr. Gelb for a number of years represented Farwell, Ozmun, Kirk & Co. of St. Paul on the road.

FROM BARNETT & LEWIS, Osceola, Mo., who have succeeded Craig & Fulton in the Hardware business.

FROM W. R. COX, Alden, Iowa, dealer in Shelf and Heavy Hardware, Stoves, Agricultural Implements, Paints, Sporting Goods, &c.

FROM J. S. HOFFMAN, Sharon, Pa., who expects to open up in business April 1, carrying a full line of Builders' and Shelf Hardware, Paints, Oils, Glass, Implements, &c. Mr. Hoffman was formerly with Hoffman & McIntyre, who recently dissolved partnership.

FROM MYRL S. MATHER, Aurora, Neb., who has succeeded his father in the general Hardware business.

FROM A. JUSTICE & Co., Mulhall, O. T., who have recently opened up in the Shelf Hardware, Stove, Implement and Sporting Goods business.

FROM GEO. W. BARTHEL, Deshler, Neb., who has bought out the Hardware, Vehicle and furniture business formerly carried on by John H. Aufderhide.

FROM FARMERS' HARDWARE & SADDLERY COMPANY, Forney, Texas, successor to the Hardware business of Pinson & Davis and the Harness and Saddlery business of T. H. Arnold.

FROM LEES HARDWARE COMPANY, Eveleth, Minn., which has succeeded A. C. Osborn at the old stand.

HARDWARE ORGANIZATIONS.

The following conventions of State Retail Hardware Associations will be held during the next few weeks:

OHIO HARDWARE ASSOCIATION:

Eleventh annual meeting, February 28, March 1 and 2, Dayton. Headquarters, Algonquin Hotel. Membership, 325. President, John F. Baker, Dayton; secretary, Frank A. Bare, Mansfield.

CONNECTICUT RETAIL HARDWARE DEALERS' ASSOCIATION:

Second annual meeting, March 7, Hartford. Headquarters, Hotel Hartford. President, W. A. Church, Derby; secretary, James De F. Phelps, Windsor Locks.

NEW YORK STATE ASSOCIATION OF RETAIL HARDWARE DEALERS:

Third annual meeting, March 7, 8 and 9, Buffalo. Headquarters and meeting at Hotel Iroquois. Membership, 175. President, John G. Ferres, Johnstown; secretary, John B. Foley, Syracuse.

CALIFORNIA STATE RETAIL HARDWARE ASSOCIATION:

Fourth annual convention, March 8, 9 and 10, San Francisco. Headquarters, St. Francis Hotel. Membership, 365. President, O. F. Sites, San Francisco; secretary, Henry Gracey, 235 Powell street, San Francisco.

NATIONAL RETAIL HARDWARE DEALERS' ASSOCIATION:

Minneapolis, Minn., March 14, 15 and 16.

NEW ENGLAND RETAIL HARDWARE DEALERS' ASSOCIATION:

Twelfth annual meeting, March 15 and 16, Boston. Headquarters, Hotel Vendome. President, John H. Sayward, Haverhill; secretary, F. Alexander Chandler, 36 Federal street, Boston.

The Collins Hardware Company, Lynn, Mass., has been incorporated to succeed the wholesale and retail Hardware business formerly conducted by the Brockway-Smith Corporation, which goes out of the line entirely to devote itself to the Door, Sash and Blind business. The new company is controlled and managed by G. J. Collins, who has had the entire management of the Hardware department of the Brockway-Smith Corporation.

E. M. Pope, Estelline, S. D., has disposed of his Hardware store and stock to N. Leonard & Son.

W. L. Little Hardware Company, Muncie, Ind., has disposed of its wholesale and retail business to the Kimbrough Hardware Company, which will continue at the same address.

Illinois Retail Hardware Dealers' Association.

CONCLUDING REPORT.

IN our last issue we presented the first day's session of the meeting of the Illinois Retail Hardware Dealers' Association at Peoria. The meeting was without doubt the best attended and most successful which this association has ever held. The plan of holding the sessions in a hall away from the hotel was a commendable one, as was also the plan of not choosing one hotel for headquarters. The delegates, manufacturers and their representatives were distributed among several hotels, and as a result there was no overcrowding and no complaint about extortionate rates. A feature of the convention was the very large representation of manufacturers. The rotundas of the various hotels were filled with displays of various lines of goods, which were usually surrounded by interested delegates.

The appointment of a Membership Committee consisting of manufacturers and their representatives is regarded as a move in the right direction. The members of this committee are well known to nearly every dealer in the State and the association will doubtless find its membership roll increasing very rapidly as the result of the appointment of this committee.

The entertainment provided by the local dealers was greatly enjoyed by all. The banquet given Wednesday evening was attended by nearly four hundred, and the speakers selected by the committee vied with each other in their efforts to make their portion of the programme interesting. Taken altogether the meeting was one which will be long remembered by those present.

Mr. Lewis' Address.

At the Wednesday morning session W. P. Lewis of New Albany, Ind., a former president of the National Retail Hardware Dealers' Association, made a brief address. He brought greetings from the Kentucky Association, which meeting he had been attending, and referred to the flourishing condition in which he had found that organization. He complimented the Illinois Association on the large number of delegates present and the apparent interest of the delegates in the welfare of the association.

President's Annual Address.

President C. H. Williams of Streator read his annual address as follows:

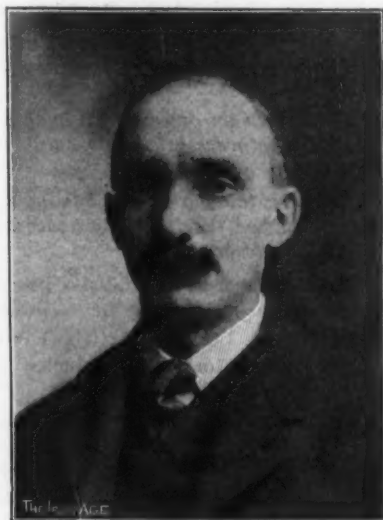
Civilization grows by contacts—a nation, a community or an individual shut up within himself becomes narrow and fragmentary. We are gathered together from all over this great commonwealth of Illinois to receive that inspiration that personal contact with one another brings, and as I look over this representative body of men, all interested in a common line of trade, I feel that we cannot fail to absorb some mental stimulus that will lessen the annoyances and increase the pleasantries of our next year's business.

In arranging the programme for this year's convention it was the plan of the committee to have as much general discussion as possible, and there is not a man on the programme who is sensitive to criticism, and we will all welcome criticism and diversity of ideas on all subjects that come up, to the end that we may all leave here less like the inhabitants of that hermit nation far away, but with the aggressiveness, if not the warlike spirit, of their island neighbors. The spirit that can manage a winter campaign in an Arctic climate would certainly make a success of the Hardware business in Illinois. To the new members who are with us for the first time I want to say that you are all appointed on the introduction committee, and to mix and get acquainted is your first duty.

FINANCIAL SUPPORT.

We should keep in close touch with the National Association, as through it, backed by strong State associations, can the most good be accomplished. To this end

we sent more delegates to the national convention last year, a very desirable thing to do, but it costs money, and this brings up the most delicate, and, up to date, the weakest, point in both State and national associations, namely, the financial support of the movement. In State matters we have always been short of cash for reasonable expenses. Your executive committee have thought of recommending an increase in the annual dues. We have this year, for the first time, an advertising programme. Mr. Nish will tell you about the financial success of the venture, but it rests with the membership of this association to make or break the future of the advertising programme. I hope every member will read the advertising, and write every advertiser who has anything to handle, and, if possible, send them some business. You can, by a little effort, without expense to



C. H. WILLIAMS.

yourself, make programme advertising profitable to the advertisers and insure the association a considerable outside revenue annually.

It is a pleasure to report progress, and the red lines printed crosswise the invoices of all important jobbers in this State are the culmination of a long campaign of education and action. I do not believe that there is a country dealer present who has not made profits more than the annual dues and expenses to this convention from sales of goods that the money had been mailed away and returned because Messrs. Blank could not pick up the goods from Mr. Jobber. If any jobber is still selling pickups to these establishments I hope it will be given publicity on the floor of this convention, and I will trust the gentlemen present to do the rest.

FREIGHT RATES.

There is no business matter of public interest attracting as much universal attention at the present time as that of freight rates and the discrimination made in favor of, and usually forced by, large combinations, often enabling them to crush competitors by this item alone. When we are quoted goods f. o. b. Pittsburgh, plus tariff rate, to destination prepaid and added to bill, and allowed to discount freight and all 2 per cent., it simply means that the shipper gets a rebate. Reform in this line is a hard proposition, and to be brought about must enlist on its side powerful political and business interests. Our freight rate committee have done everything in their power to have the unjust tariffs in the State of Illinois changed. A member of the committee is here

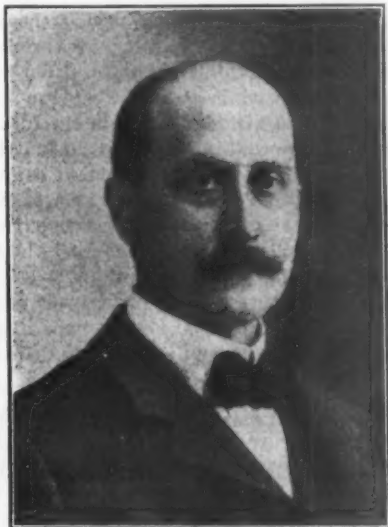
and will tell you what they have done, and what they have been up against. I trust this convention will inspire, and have a copy sent to Washington, the stand taken by President Roosevelt in the matter of government control of freight rates.

The retail merchant occupies a perilous position between monopolistic greed and the masses of the people, and he should study from all possible standpoints the great national affairs of momentous importance, and when the Chief Executive dares to shake off party conservatism and go into a struggle for justice to all against the privileged few, the people who come in the closest touch with the masses should be the first to back him with all the power that they can command.

Our executive committee will present a matter to you which they believe will bring you back in dollars more than this association costs you.

It is pleasing to note that while the last year was a Presidential year business was very little disturbed, and all are reporting a fair share of prosperity. The demand for better grade of goods continues and this is a great factor in keeping trade in legitimate channels.

The Hardware trade papers have spared neither



FREDERICK GIESSING.

brains nor expense to foster and help in every way possible our State and national associations, and we cannot in words express all the appreciation we feel for their zeal and loyalty. I feel that the time has come when they should not be expected to publish as full reports of our various conventions as formerly; it takes too much space. Also, the dealer who stays at home and expects to get the full benefit of the conventions from his trade paper will feel more disposed to join the association and attend the convention if he cannot get it in full from their reports.

Freight Committee Report.

Fred. Giessing, member of the Special Freight Committee, made a verbal report of the work done by that committee. In part he said: We have from time to time, through the trade journals, been informed of the condition of freight rates of this State. If you will stop to think, the merchants of this State are paying \$20,000,000 more in proportion to the amount of freight handled than our neighboring States. You will readily realize that this is no small matter. Our State Railroad and Warehouse Commission regulates freight rates, but when this committee went before the commission we found that the commission was dominated by the appointive power, or, in other words, if the commission did not do as the Governor wished he could simply replace it with another committee, yet, with all this, the commission agreed something like a year or so ago to make a reduction of 25 per cent on the general line of schedules covering our freights. But when the time came to put it in operation something happened and it never came to pass,

and we have been hammering at them hard ever since, and with hopes of success. As the matter stands now, we feel fully assured, with the assistance of an attorney who has been employed to assist us, and the jobbers, that something can be done, and that something will be done.

Plumbing and Hardware.

L. D. Ray of Belvidere then presented a paper entitled "Plumbing in Connection with Hardware," which was printed in full in last week's *Iron Age*. The paper brought out some interesting discussion, and in response to a question Mr. Ray made the statement that he had been able to buy goods in the plumbing line from both manufacturers and jobbers just the same as a strictly plumbing shop. He advised dealers to buy sparingly at first and then increase their purchases slowly, as the needs of this department required. The paper, together with the discussion, was favorably received.

Hardware Stores: Past, Present and Future.

Grant W. Porter of Chicago read the following paper under the above title:

The aggressive business promoters of to-day do not wait for demand to come, they make it come. It used to be that a man bought his goods; now it were better to say, his goods were sold to him. True, we must have a sympathetic public to work on, and conditions must have advanced far enough to receive our propositions; but, in the majority of cases, the burden of consummating the transfer of goods is carried by the seller. He does not wait for you to determine your needs, he anticipates them for you.

THE SUCCESS OF ANY ENTERPRISE.

depends upon these prime factors:

First—It must either fill a long felt want or fill some want which its creation generates.

Second—It must be presented with force enough to convince your prospective purchaser.

Third—The length and size of your success depends upon integrity and constant effort. When you see a man or a concern who thinks that his past efforts are sufficient to warrant future business, and who gradually lessens his push and leans upon his past achievements, it doesn't need a gypsy to tell his future.

The constant swirl of commercialism soon undermines and rots his prop off, and nine times out of ten he never again regains his equilibrium. I have in mind firms who years ago occupying the top rung of the ladder were so thoroughly pleased with their position and themselves that their attitude seemed to place them beyond further effort; but here we see a young, aggressive fellow at the foot who is not satisfied with his position and he immediately starts in pursuit. Mr. Contentment, on the top rung of the old ladder, sees the new extension which Father Time is running up, but thinks he is high enough. Our young friend below keeps his eye on Father Time, and before he is aware of a close second our satisfied competitor looking up sees Father Time shaking hands with his young rival as he clambers to the top.

Did it ever occur to you that there was such a disease as self-satisfaction? After you get on top don't watch your neighbor on the nearest rung to you; watch Father Time as he shoves the ladder up. A runner never looks behind; his business is ahead.

A HARDWARE STORE IS AS GOOD A BAROMETER

of the world's progress as any other lines of trade which go to make up our industrial activities. When we say Hardware we cover a larger variety of wares than can be absorbed by any other trade emblem. It harbors today in various localities specialized lines which are large enough in other localities to be treated as such, occupying a field in themselves capable of absorbing the whole attention of some of our shrewdest managers.

Draw for a moment a focus on a Hardware stock when Nails were made by hand, think back and picture to yourselves the variety of shelf goods, if they may be so called, for few were boxed like to-day, and in your imagination you will see a very meagre display. Take from our present stocks those lines which have been invented and adopted during, if you please, the last fifty

years. Substitute for our modern articles of trade those which were sold before the fifties. Employ the same methods which were then employed. Eliminate all modern tools and appliances from your workshop and you have indeed an "old curiosity shop."

My experience as compared with that of most of you is small indeed. But as I look back and compare conditions, I can see in many instances line after line which has gradually been lost to the Hardwareman and absorbed by some special trade, unless the Hardwareman, following the evolution, sees fit to adopt the change.

There are certain lines in our trade which, no matter where the locality, are considered necessary stock. All stores with the word "Hardware" over their doors carry them. Then, again, there are lines which, owing to the judgment of the concern and the needs of the locality, are added to their staples, until such a numerous variety of stocks can be found as to bewilder even some of the oldest and most experienced of Hardwaremen.

When a man sells much of one line and little of another he is going to confine himself to that which his judgment tells him brings in the dollar, and eliminate that which grows shopworn, before he cuts off the profit to induce his customers to relieve him of it.

Much could be said in this regard, but very little of it would be new to the majority of us. In summing up the whole situation no one here, I believe, will deny the fact that the most successful among us are those who are abreast of the times. As I have said before, I do not believe that there is any line of business which calls for better or more level headed men to make it a success. It is one of the best educators of the trades, and if a man is capable of carrying on a successful Hardware store, his business capacity and universal knowledge are far ahead of the majority of trade managers. Our future rests where it ought, largely upon our own shoulders as individuals and what we get out of our organizations. We have not been the first to organize, but the rapidity of our growth as an organization, both local and State, shows us the value of mutual helpfulness and good fellowship. Some will insist upon standing in their own light until a sudden burst of illumination shows them their advantage; and I do not hesitate to predict that our organization and others are fast approaching that brilliancy when all, subject to any impressions, will record themselves and become a part of our unity.

IN LOOKING INTO THE FUTURE,

and judging from our past advancement, I predict that our posterity and theirs will see conditions which are as foreign to us to-day as ours would have been to our forefathers. I am not prophet enough to tell what these changes and growth will be, but come they will. I can see a great need for systematized education, especially for those upon whom we depend for assistance. The success of our business rests more than we know in the hands of our help; and the impression which they make upon the trade makes for or against our success.

We have a number of highly instructive journals which are read too little, but even their pages do not educate along the lines I have in mind. For instance, a local association could be made more of a school, not only for the Hardwareman but for his clerks. Certain courses of study could be employed where more could be learned in one week than in six months by absorption in connection with store duties. Why not familiarize ourselves with modern needs in salesmanship and systematized accounts as well as talking over prices of goods? Our clerks could enter into competition with each other to demonstrate their ability as salesmen. Following this suggestion, make actual approaches to supposed customers and endeavor to make selling impressions. Place the clerk in a position to make more money for the concern and incidentally for himself. Show him what he can do, and make him acquainted with the size of other clerks, then he will have a standard to work to.

Again, we must endeavor to fight against the tendency of direct-to-consumer business. Help those jobbers and manufacturers who are true to our interests. Do not assume a lazy attitude where your interests and theirs

are concerned, and through lack of push and education do not compel a manufacturer to be his own retailer. This tendency is increasing because of the gulf which is the result of large consumers on the one hand and the acknowledged inability of the Hardware merchant to handle the business on the other. A line of goods once lost is rarely ever regained. When a concern commences to dispense its own product, sometimes from choice and sometimes from necessity, they seldom, if ever, cater to our interests again.

Our existence and growth depend, as I have said before, upon our ability, and our ability is the result of education and experience. We need the manufacturer and the jobber and they need us. Be fair.

IN THE PROCESS OF EVOLUTION

we must conform to its demands, striving to adjust ourselves to some changes, and also prevent as much as possible changes which divert the stream of trade to other channels than ours. One of these channels has grown to such an extent as to demand our utmost vigilance, and cannot be passed without a remark. Our friends the catalogue houses and department stores are not only a menace to local dealers and their trade but to the community which they drain. They differ from any of our great drainage systems in that out of the vast wealth which they annually absorb from our various localities, they return not a farthing. Your local dealer bears the burden of accounts while they pick up the loose change. If we expect to check their growth in the future we must do so more as an organization than as individuals. We must show the public the proposition as it appears to us and as it really is. Place ourselves in a position to cope with them, increase our facilities, prevent if possible unjust legislation, and show our community the necessity of home patronage and home institutions.

To do this we must be a power; power rests in unity. Unity is the result of concerted action, and concerted action is inspired by mutual grievances. Have we any?

Mutual Insurance.

At the afternoon session W. P. Lewis of the National Hardware Dealers' Mutual Fire Insurance Company addressed the meeting on the subject of mutual fire insurance. Mr. Lewis, after touching on the formation, growth and success of the national company, referred to the other Hardware mutual insurance companies in the field and said that they were well managed and constructed on good safe lines. Personally he had never been in favor of the organization of a State company, because a State company sought chiefly the patronage of that one State; that in the nature of the case they could only grow to the extent that the patronage of that State would permit them to grow. Mr. Lewis hoped the time would come when all mutual insurance companies might be consolidated in a great national company. He favored the plan of a very large company which would be able to take as large a risk as the dealer desired and not be confined to the present limit of \$3000. He said a large company might adopt a series plan, each series having one and a half millions of insurance, and where a risk was taken in one series to a certain amount another risk could be taken in the next series for a similar amount, thereby giving the company all the insurance.

H. G. Cormick of Centalla made a motion that the convention indorse the National Insurance Company, which motion was unanimously adopted.

Address of F. E. Muzzy.

F. E. Muzzy of the J. Stevens Arms & Tool Company of Chicopee Falls, Mass., by special invitation then addressed the meeting.

Mr. Muzzy said that every Hardware dealer in the United States should join his State association. He did not believe it possible to drive the catalogue houses out of business, but he thought the manufacturers could be induced not to make the catalogue houses their dumping ground and to control catalogue house prices on well known goods. He said the catalogue houses resorted to so many devices to secure prominent lines of goods that

It was almost impossible to trace their source of supply and shut them off.

Referring to the retailer handling mixed lines of goods, he said the retailer should not make unreasonable demands of the jobber or manufacturer, such as selling other than regular Hardware dealers, when the Hardware dealer, both jobber and retailer, carried more of a mixed line of goods than any one else.

Mr. Muzzy recommended the auction sale of dead stock in some vacant room—stock collected from all merchants—as a means of clearing out unsalable goods and reducing surplus stock without interfering with regular trade. All the merchants of the town could combine and have these auction sales at intervals during the season, to their mutual benefit. He also most forcibly denounced the proposed parcels post bill, and urged the using of every honorable means to prevent its becoming a law.

Our Association: Its Objects, Results and Future.

At the close of Mr. Muzzy's remarks, which were warmly received by the delegates, the following paper was read by H. G. Cormick of Centralia:

On August 16, 1899, the Illinois Retail Hardware Dealers' Association was organized in Chicago. At this first meeting a paper was read by the lamented Ehler Goettsche—than whom there never lived a more generous, light-hearted, cheerful soul—in which among other objects the following were mentioned:

- 'Doing away with jealousy;
- Shorter business hours;
- Social gatherings;
- Protection against deadbeats;
- Co-operative buying;
- Formation of local associations.

To those who have been in touch with our history it is apparent that many of these items are now established facts. Can any one cite to me a community where more than one of our members reside that jealousy controls their business operations?

Many are the cities in which shorter business hours prevail. Social gatherings where there are local associations have become numerous, being of incalculable benefit to each individual.

Such has been the interest in eliminating the deadbeat that there is scarcely a place of any size but restrictions have been so thrown around his operations that in the near future he will cease to be a menace to business health.

Great strides have been taken in co-operative buying, and it is practiced to quite an extent in most of the cities of our State. Also in a few instances it has spread to the country where dealers are suitably located. Carefully and conservatively followed, the results are "easy money" with a little effort on the part of the executives.

Local associations have sprung up wherever there were sufficient members to justify them, and in many places where our membership is small they have been mainly responsible for the existence of retail merchants' or business men's associations, which have been of great value to their several communities.

AS TO RESULTS.

It is with pride that we are able to point to the "illuminated" position Illinois took in the organization of the National Retail Hardware Dealers' Association, under the leadership of our esteemed first president, Z. T. Miller, and those who supported him. If this was all that had been accomplished, it were enough to give us the right to live, to assist in maintaining this, our great lever in gaining results.

The history of the early days of the National Association should cause every Illinois member to be puffed up with pride, as her representatives therein were a potent influence, wielded always for the future good of all.

While we have been a factor in defeating the Parcels Post Bill in the past, and have an eye on it for the future, while we have prevented railroad agents from becoming representatives of the catalogue houses, yet, to me, greatest of all results is the fact that by our existence we are

able and ready to oppose anything against our welfare and aid anything for our good.

Candidly, can any of you who have been with us through a few years desire the failure of this effort? The attitude of the retailer toward the jobber, and in turn of the jobber toward the manufacturer, is such as had never existed. For this improved condition this movement is alone responsible, and I believe that the success in inducing the withdrawal of certain lines from catalogue houses is but one of the results destined to be gained.

Slowly and carefully we have built up a character, which, I believe, is in accord with these lines: "Character is not builded in a day. It takes a lifetime, and the bricks used in its construction are the little everyday acts of carefulness, honesty, loyalty and faithfulness."

BETTER RETURNS.

If the foregoing premises are well taken, it behooves us to look into the future, and, if possible, gain knowledge whereby we may get better returns for our efforts.

First in importance is our increase in members. Past experience has demonstrated that of all means personal



H. G. CORMICK.

solicitation gets the best results; but this costs money. Will the convention provide the funds? Our officers are competent and will see that the work is done.

Now that the means for escaping high fire insurance rates, through the National Hardware Dealers' Mutual Fire Insurance Company, has been provided, will we avail ourselves of it in sufficient numbers to encourage the gentlemen who have organized it, and by sacrifice of their time and money put it in such splendid working condition?

In order that our association be relatively more successful, let me impress upon every member the necessity of becoming an active member of a retail merchants' organization in his community, through which you can reach encroachments upon your rights as business men, foster local improvements and keep in close touch with abuses in local government.

Much has been said and written about the baneful influence of catalogue house and department store competition, and no specific has yet been offered for it, yet, if our members will not live in their storerooms from morning until night, frittering away their time over the details of their business that can be left to employees, but will get out, mingle with their trade, entering into their life as much as possible, much can be done to help present conditions.

Let me plead with you as incidental to the future welfare of our association that each of you take a high position as to civic local pride and citizenship, that the rumors of fraud and graft in the conduct of our government may cease and be without a foundation of fact.

Petition.

Fred. Giessing of East St. Louis then introduced a petition addressed to Hon. Chas. S. Deneen, Governor of Illinois, and the Board of Railroad and Warehouse Commissioners, which he requested the members to sign. Following is the petition:

Whereas, The schedule of maximum rates of charges for the transportation of freight now in effect in Illinois has been in force with practically no change or reduction for about 24 years, during which period the cost of handling freight (as evidenced by all official statistics, including the annual reports of railroad presidents and other officials) has been reduced to a present cost of one-fifth of the cost when the schedule was put into effect; and

Whereas, Comparison of the published tariffs (and other authentic and undisputed evidence now in possession of your honorable body) of the railroads operating in Illinois with the published tariffs of the same and other railroads operating in the States of Indiana, Ohio, Michigan and Iowa show much lower rates given to shippers in those States for like service; and

Whereas, This discrimination is unjust and oppressive, excessively increasing the cost of all merchandise, including the necessities of life, retarding the manufacturers and the development of those portions of the State where maximum rates are in force;

Therefore, We, the undersigned, do most earnestly petition



FRANK B. MCKENNEY.

your honorable commission to revise and reduce the schedule of maximum freight rates now in force to a basis of a parity with the rates charged by railroads in Indiana and other surrounding States and more really in conformity to the cost of handling freight at the present time.

Secretary's Report.

On Thursday morning the report of Secretary Nish was presented. Mr. Nish said that an important part of the association work at the present time was to secure new members, and the applications and replies from the dealers of the State indicated that there was an awakening and that it needed only enthusiastic endeavor and push on the part of every individual member to reach the goal. He then quoted the membership of several of the other Hardware associations, which proved that Illinois stood sixth in the list in point of numbers. He deprecated the fact that the association representing the great State of Illinois should be so far down in the list and urged every member to do his share toward increasing the membership during the coming year. He commended the work done during the year in the matter of securing new members by R. R. Elliot, the Illinois representative of the Estate of P. D. Beckwith, Dowagiac, Mich., and strongly urged other traveling men to enlist in the work. He reported 98 new members received during the year, bringing the present membership close to 400.

Speaking of the convention programme, he said the Executive Committee had decided in the last days of November to have this issued and that he immediately canvassed the State for advertising. His requests for advertising were confined to houses having a representative

place of business in Illinois. He said it was a very short time to do the work and do it successfully, and that the general sentiment seemed to be that the work be continued the coming year in order to make a greater success.

Treasurer's Report.

Treasurer George Engelhardt of Chicago reported a small balance on hand at the opening of the convention, with a good showing of receipts at the meeting.

Work and Be Square.

T. J. Matthews of Mt. Vernon read a paper entitled "Work and Be Square," which was printed in our last issue.

Next Meeting at Chicago.

The Committee on Location then reported to the convention its inability to agree on a place for the next meeting, and after some discussion the city of Chicago was unanimously chosen.

Thursday Afternoon.

The Auditing Committee reported favorably on the examination of the accounts of the treasurer. E. F. Baldwin of the Peoria Star Company was invited to address the convention. He said the secret of success was greater and wider than the mere acquisition of money. Of course the great problem was to sell goods at a profit, but, having done that, then comes the larger and higher duty of your relation to society and yourself. He said the constant desire to pursue riches brought its own punishment. The business man should be satisfied to make a reasonable profit and then give some time to loftier ideals.

New Officers.

The following officers for the ensuing year were chosen:

PRESIDENT, Frank B. McKenney, Rockford, Ill.

VICE-PRESIDENT, F. Giessing, East St. Louis.

EXECUTIVE COMMITTEE (to fill two vacancies): Wm. T. Gormley, Chicago; L. D. Ray, Belvidere.

LEGISLATIVE COMMITTEE: C. Hauss, East St. Louis; J. L. Smith, Chicago; Chas. H. Williams, Streator; Geo. Harms, Peoria; Geo. B. Churchill, Galesburg.

INVESTIGATING COMMITTEE: G. R. Lott, Chicago; T. J. Williams, Mt. Vernon; H. Kross, Peoria; Chas. Robinson, Springfield; C. E. Mauer, East St. Louis.

DELEGATES TO THE NATIONAL CONVENTION: Chas. H. Williams, Streator; L. D. Nish, Elgin; Frank B. McKenney, Rockford.

MEMBERSHIP AND PROMOTION COMMITTEE: W. H. Bennett, Chicago, Lawson Mfg. Company, Chicago; R. R. Elliott, Springfield, Estate of P. D. Beckwith, Dowagiac, Mich.; Jno. Le Page, Peoria, Bridge & Beach Mfg. Company, St. Louis, Mo.; Charles Smith, Chicago, Charles Smith Company, Chicago; E. C. Loomis, Chicago, Rothchild, Meyers & Co., New York.

Resolutions.

The Committee on Resolutions submitted the following:

Whereas, We believe in the existence of the illegal practice of giving rebates by the railroad corporations to certain large shippers; and

Whereas, Such discriminations place unjust burdens on the small shipper; and

Whereas, We believe in extending the power of the Interstate Commerce Commission to enable it to remedy this injustice; therefore, be it

Resolved, That we commend the action of President Roosevelt in his endeavor to right this injustice; and be it further

Resolved, That copies of this resolution be mailed to the President and the members of Congress from Illinois.

Whereas, The freight rates existing in the State of Illinois are excessive in comparison to those of our adjoining States; and

Whereas, The present rates were established at a time when the cost of operation was much greater than at the present; and

Whereas, All past efforts and petitions for a remedy of these conditions have been of no avail; and

Whereas, We believe in the disposition of our Governor to establish exact and equal justice; therefore be it

Resolved, That we petition our Governor and Railroad and Warehouse Commission to take such action as will eliminate this injustice.

Bills have been prepared by the Retail Merchants' Association of Illinois to be submitted to the present session of our Legislature for enactment, to wit:

1. A bill providing for the regulation and licensing of trading stamp companies and dealers who give trading stamps.

2. A bill whereby 10 per cent. of the earnings of wage earners may be subject to garnishment.

3. A municipal garnishment bill, whereby the wages of officers and employees of counties, cities, towns, villages, school districts, and departments of either thereof, may be subject to garnishment; and

Whereas, We as Hardware dealers are vitally interested in the passage of the above named measures; therefore, be it

Resolved, That we, the Retail Hardware Dealers' Association in convention assembled do heartily approve of the aforesaid bills and will lend our moral and financial support toward the passage of the same.

Other resolutions adopted thanked the officers, the trade and local press, the Peoria Association and traveling salesmen.

Banquet.

On Wednesday evening at Turner Hall nearly 400 persons sat down to a banquet as guests of the Peoria dealers. The menu was a splendid one, the decorations were tasteful, and the music was enjoyable. It was nearly midnight when the party rose from the table, all voting it a very enjoyable occasion. The speakers included Chas. H. Williams, W. P. Lewis, C. L. Burch, H. G. Cormick, W. H. Bennett, H. H. Roberts, R. R. Elliott, A. P. Reiter and F. K. Gray. A. F. Victor of the White Lily Washer Company, Davenport, Iowa, entertained the party with an exhibition of legerdemain.

Visitors.

Among the representatives of manufacturers and jobbers present were the following:

WINCHESTER REPEATING ARMS COMPANY, New Haven, Conn., Ward Burton.

WHITE LILY WASHER COMPANY, Davenport, Iowa, Sam S. White, A. F. Victor.

LANDERS, FRARY & CLARK, New Britain, Conn., L. L. Redick.

MICHIGAN STOVE COMPANY, Chicago, Henry A. Pope, J. Stratton Taylor.

COLE MFG. COMPANY, Chicago, C. A. Woolley and O. C. Harrison.

L. J. MUELLER FURNACE COMPANY, Milwaukee, Wis., G. C. Mueller, J. B. Wilson, Andrew P. Dease.

THE SHELBY SPRING HINGE COMPANY, Shelby, Ohio, R. E. Murray.

T. C. PROUTY COMPANY, LIMITED, Albion Mich., R. E. Murray.

RATHBONE, SARD & CO., Aurora, Ill., M. Kauffman, Ben F. Mortensen.

CULTER & PROCTOR STOVE COMPANY, Peoria, Ill., R. A. Culter, H. G. Culter, A. V. Culter, J. C. Fox, M. N. Hagaman, S. M. Schaeffe, C. H. Colles.

RATHBONE, SARD & CO., Aurora, Ill., M. Kaufman, Ben F. Mor-

THE DUNLAP MFG. COMPANY, Dunlap, Iowa, Guy H. Wood.



L. D. NISH.

CHAS. SMITH COMPANY, Chicago, Chas. Smith.

MAY & FIEBEER, Akron, Ohio, S. E. Ellis.

YALE & TOWNE MFG. COMPANY, New York, A. B. Howell

DIAMOND SPIRAL COMPANY, Chicago, J. M. Rauhoff.

PITTSBURGH STEEL COMPANY, Pittsburgh, Pa., E. C. Burdick.

HOME PRIDE RANGE COMPANY, Marion, Ind., R. C. Houston, John Merkel, F. D. White, Theo. J. Schultz.

ACME WHITE LEAD & COLOR WORKS, Detroit, Mich., S. L. McCombe, Thos. F. Otley.

SIMONDS MFG. COMPANY, Chicago, Will J. Feddery, Joseph C. Miller.

QUALITY STOVE & RANGE COMPANY, Belleville, Ill., Geo. M. Jackson, R. H. Winkelman.

MALLEABLE IRON RANGE COMPANY, Beaver Dam, Wis., Carl Phillips.

WADSWORTH-HOWLAND COMPANY, Chicago, Geo. H. Bullock.

HIBBARD, SPENCER, BARTLETT & Co., Chicago, A. P. Reiter, J. L. Hill, G. S. Winders.

VOSS BROS. MFG. COMPANY, Davenport, Iowa, W. H. Voss, Henry White.

GEM CITY STOVE MFG. COMPANY, Quincy, Ill., John Merkel, Theo. J. Schultz.

LYONS SPECIALTY COMPANY, Lyons, Iowa, Wm. Petersen.

MALLEABLE IRON RANGE COMPANY, South Bend, Ind., W. E. Sprague.

TROUT HARDWARE COMPANY, Chicago, Geo. W. Trout, R. H. Warren.

J. D. WARREN MFG. COMPANY, Chicago, F. N. Stevens.

AMERICAN STEEL & WIRE COMPANY, Chicago, A. L. Wellman, Geo. Tewksbury, Major Holloway, E. J. Smith.

J. STEVENS ARMS & TOOL COMPANY, Chicopee Falls, Mass., F. E. Muzzy.

NATIONAL CUTLERY COMPANY, Detroit, Mich., F. M. Stover, M. D. Squier.



GEO. A. ENGELHARDT.

STARR SHOVEL & RANGE COMPANY, Vincennes, Ind., H. Brown, C. P. Frick.

H. CHANNON COMPANY, Chicago, G. Rubling.

ROBESON CUTLERY COMPANY, Rochester, N. Y., H. W. Beegle, J. E. Booth.

ROCHESTER STAMPING COMPANY, Rochester, N. Y., H. W. Beegle, J. E. Booth.

LOVELL MFG. COMPANY, Erie, Pa., C. B. Wingfield.

E. C. ATKINS & Co., Indianapolis, Ind., Robt. Eveland, Frank Wells, S. M. Perrigo, W. E. Stalnacker.

THE AMERICAN WRINGER COMPANY, Chicago, Louis Schmetzer.

ESTATE P. D. BECKWITH, Dowagiac, Mich., Robert B. Elliot, H. B. Gingrich, Jno. A. Howard.

STOWELL MFG. COMPANY, Jersey City, N. J., M. B. Hood, C. B. Barlow.

LAFAYETTE STOVE FOUNDRY COMPANY, Lafayette, Ind., E. W. Bryant, E. S. Shelby, F. S. Moore.

READING HARDWARE COMPANY, Chicago, W. H. Bennett.

LAWSON MFG. COMPANY, Chicago, Evans Nelson.

STOWELL MFG. & FOUNDRY COMPANY, South Milwaukee, Wis., M. J. Evans.

CLARK, QUIEN & MORSE, Peoria, Ill., Chas. D. Clark, F. E. Smith, L. F. Beeson, F. L. Jenkins, L. B. Rusk, L. C. Wilt-

ing, B. H. Miller, Geo. B. Schneider, T. L. Brickey, J. W. Wood.

STUBER & KUCK, Peoria, Ill., Jos Stuber, Henry Kuck.

DIAMOND SPIRAL MFG. COMPANY, Tinley Park, Ill., H. Rauhoff, Wm. Scharf.

PETERS CARTRIDGE COMPANY, Cincinnati, Ohio, G. W. Cadwalader.

OHIO TOOL COMPANY, Columbus, Ohio, William Miller.

GERMER STOVE COMPANY, Erie, Pa., Harry Bell.

BOYNTON FURNACE COMPANY, Chicago, R. C. Cook.

Geo. M. Clark & Co., Chicago, J. C. Buckley.

CHICAGO HARDWARE COMPANY, North Chicago, S. S. Smith.

MEYER FURNACE COMPANY, Peoria, Ill., Frank Meyer, George Meyer, Wm. Brunega, L. O. Pouchat, Chas. Ulig, J. A. Filckinger.

CRIBBEN & SEXTON COMPANY, Chicago, M. L. Weinberg, D. J. Steele.

Souvenirs.

Souvenirs were plentiful and, as usual, were eagerly sought for. The representatives of the following firms were kept busy distributing them:

ESTATE P. D. BECKWITH, Dowagiac, Mich. Decorated Plate, and Cigars in special wrappers.

E. C. ATKINS & Co., Indianapolis, Ind. Aluminum Comb.

Colorado Retail Hardware Dealers' Association.

CONCLUDING REPORT.

ABOUT 100 Hardware merchants of the State were in attendance at the convention, which was the most successful in the history of the association.

Catalogue House Competition.

The subject of catalogue house competition came in for a good deal of discussion, and ways and means for combating it were advanced by those in attendance. In this connection proposed parcels post legislation at Washington was condemned.

Mr. Corey's Address.

M. L. Corey, secretary of the National Retail Hardware Dealers' Association, addressed the association at length, referring to the work of the association, some of the things which have been accomplished and plans for the future. Mr. Corey's address was of exceptional interest to the members and at its conclusion he was given a vote of thanks.

J. M. Killen's Address.

J. M. Killen of Pueblo made an address on the subject of the proper method of ordering goods. He said that indefinite description of the supplies desired by the retail merchant was the cause of much confusion and misunderstanding on the part of the wholesale dealer.

Other Addresses.

Among other nonmembers who addressed the association were J. M. Lyon, representing Hibbard, Spencer, Bartlett & Co.; S. H. Hall of Trinidad, George Tritch, W. C. Henroux and Lucius Moore of Denver and G. W. Gladding of E. C. Atkins & Co., Indianapolis, Ind.

State Legislation.

If the wishes of the retail Hardwaremen of the State are heeded the Legislature will make it impossible for any one to dodge a Hardware bill, resolutions with this end in view having been adopted.

A resolution looking to more reasonable game laws was also adopted. Members claimed that the seasons were too short and that the restrictions on souvenirs of the hunt were too severe.

New Officers.

The following officers for the ensuing year were selected:

PRESIDENT, A. B. Meservey, Colorado Springs.
VICE-PRESIDENT, Adolph Unfug, Walsenburg.
SECRETARY-TREASURER, Davis Barkley, Ft. Collins.
EXECUTIVE COMMITTEE: J. F. Wallace, Hooper; A. B. Corbin, La Junta; Davis Barkley, Ft. Collins; F. A. Ellis, Jr., Denver.

Davis Barkley, the newly elected secretary, was selected to represent the association at the national convention, to be held in Minneapolis March 13, 14 and 15. Ex-Secretary Moys will also attend the convention as a director of the National Insurance Company.

Secretary's Report.

Following was the report of F. C. Moys, secretary of the association:

The year just closed has been full of peculiar experiences. In a business way it has been one of the most difficult for a Hardware dealer to make any money, owing to numerous things. It has been a year of declining markets, which makes a Hardwareman puzzle his brain to keep things coming right so as to show a balance on the right side of the ledger. We have had labor disturbances enough to satisfy the most exacting agitator for some time to come. With trouble in the principal coal camps as well as in some of the large mineral bearing districts and an army of soldiers in the field business in many portions of the State has been paralyzed. With the industries of the mining districts closed and bounteous crops in the States east of us, our farmers and

fruit growers have had no little difficulty in finding a market for their products.

Considering all of these conditions with which we have had to contend, it is not surprising that we have not accomplished as much as we had hoped for during the past year. Neither is it surprising that some dealers have become discouraged and asked to be dropped from our membership or that others have neglected to pay their dues. And yet, with all we have had to contend with, our showing is not bad. In view of the fact that there are only 199 Hardware dealers in the State, many of whom live in out of the way places and are not thrown directly in contact with conditions we are endeavoring to overcome, we have a goodly proportion of those available enrolled as members. I doubt if any other State can show as large a percentage, but it is not enough. With practically every dealer in the State as a member, and all



DAVIS BARKLEY.

lending their hearty support to your officers and committees, what is there in reason we cannot accomplish?

MOST OF THE DENVER JOBBERS

are in the same position as before. They will sell to your customer at so near the price they quote you that you cannot do business on the protection thus afforded. And on a great many things at least, if not on all of them, they will sell your customer as cheaply as they will you. This is especially true when your customer goes to them with a good sized order ready to place and asks for a quotation. In such a case your so-called jobber of Denver forgets you are on the map. And still the Denver boosters' club wonders why retailers do not patronize Denver!

In connection with the representatives of the Colorado Grocers' Association and the Colorado Implement Dealers' Association a meeting was held in Denver January 3 to consider the matter of legislation of especial interest to our line of business. I have been called to Denver on this matter four times in all, the last time being February 9, at which time at Senator Wood's request I went with several others before the Senate Judiciary Committee to plead for the passage of Senate bill No. 176, known as the Itinerant Vender's bill. This is the bill which was drawn by Judge Stevens at the request of the above mentioned delegates and was introduced by Senator Wood. Senator Wood also introduced Senate bills Nos. 105 and 177. Senate bill No. 105 provides a right to attach without first obtaining judgment if the debt be for domestic

necessities, such as house rent, groceries, clothing, household utensils, &c. Senate bill No. 177 provides that all public officials shall be liable and subject to garnishment in the same manner as other people. In a recent communication I advised you of these three measures and asked your support of same. Some action should be taken at this meeting to further this much needed legislation.

This meeting will be my last appearance as your secretary-treasurer. In handing over the burdens and pleasures incident to the office to my successor I wish to thank you all for your kindly interest in the work and the support which you have given me during the past two years. We started out in 1903 with the firm conviction that a number of things were wrong which we wished corrected. We have devoted many hours to thought and hard work, and hope conditions have improved at least a little. But to me this association would have been worth



F. C. MOYS.

while if the only privilege was to come to this annual meeting. It is a good investment just to come here and rub elbows and get acquainted with the "other fellow."

Resolutions.

Among other resolutions the following were adopted:

Resolved, That it is the sense of the Colorado Retail Hardware Dealers' Association that any dealer in Colorado carrying a well assorted stock of Hardware and kindred lines commensurate with the demands of his community and working in harmony with this association shall be eligible to be classed as a Hardware dealer, and as such be entitled to membership in this association.

Resolved, That we continue to use our best efforts in defeating any reduction of present postal rates applying on merchandise.

Resolved, That it is the sense of this association that all Hardware dealers of the bordering towns of New Mexico, Wyoming and Utah be admitted to membership in this association pending and until such time as they are able to organize associations in their respective States.

CONVENTION NOTES.

At the invitation of George Tritch of the George Tritch Hardware Company, Denver, a number of the delegates remained over to attend an interesting demonstration of brazing at its store on Thursday morning by the National Brazing Compound Company of Denver.

E. C. ATKINS & Co., Indianapolis, Ind., were represented by G. W. Gladding, who occupied a sample room on the main floor of the Hotel Adams, where was shown a complete line of Hand Saws, Saw Tools, &c. The company's souvenir, a saw comb in a leather case, was in great demand.

THE KETTERING-BENWAY HARDWARE COMPANY, Denver, exhibited a sample Refrigerator made by Herrick Refrigerator Company, Waterloo, Iowa, in room adjoining convention hall.

THE MALLEABLE STEEL RANGE MFG. COMPANY, South Bend, Ind., showed one of its new Ranges, with J. B. McKeon, its Western sales manager, in charge.

B. W. CAVELL, manufacturing agent, Denver, showed samples of Ranges made by the Peerless Steel Range Company, Chicago; the Cleveland Co-operative Stove Company, Cleveland, and the Ashland Steel Range & Mfg. Company, Ashland, Ohio.

Members Present.

John Spriesterbach, Alamosa.	F. E. Wilson, Boulder.
Adolph Unfug, Walsenburg.	Hayward Bros., Stirling.
A. L. Branson, Trinidad.	N. C. Sullivan, Longmont.
John T. Clough, Colorado Springs.	O. A. Cramer, Monte Vista.
A. B. Corbin, La Junta.	Davis Barkley, Ft. Collins.
W. G. Branson, Las Animas.	C. W. Kettering, Denver.
W. M. Jamieson, Trinidad.	A. D. Benway, Denver.
L. H. Bancroft, Canon City.	John S. Barber, Denver.
Geo. E. Mayer, Denver.	A. A. Ferguson, Loveland.
Frank A. Ellis, Jr., Denver.	John A. Steele, Gunnison.
T. M. Harding, Canon City.	S. W. Clark, Ft. Collins.
F. C. Moys, Boulder.	John A. Foutz, Leadville.
J. F. Wallace, Hooper.	Preston Day, Castle Rock.
John H. Linder, Golden.	C. N. Yeaman, Akron.
J. B. McCutcheon, Greeley.	Amos Carl, Wray.
B. L. Van Vechten, La Jara.	Brown & Lycan, Platteville.
W. D. Carroll, Antonito.	C. K. Coleman, Littleton.
J. B. Ferguson, New Windsor.	S. A. Coston, Ft. Morgan.
A. B. Meservey, Colorado Springs.	J. R. Elliot, Denver.
M. S. Whiteley, Boulder.	Edw. Arps, Ouray.
A. Duenweg, Brush.	Albert Arps, Ouray.
L. C. Hunt, Victor.	W. H. Clatworthy, Ft. Morgan.
D. R. McArthur, Greeley.	R. W. Isaac, Clayton, N. M.
A. H. Griswold, Ft. Collins.	Getts & Getts, Delta.
E. P. Riddell, Ft. Collins.	E. W. Richards, Sugar City.
O. W. Lowell, Idaho Springs.	C. A. Black, Wellington.
C. W. Bomgardner, La Junta.	S. P. Jull, Littleton.
	D. W. Slocum, Grand Junction.

Other Visitors.

The following representatives of manufacturing and jobbing interests were in attendance:

C. L. Buck, Lee-Glass-Andreesen Hardware Company, Omaha, Neb.
 G. W. Gladding, E. C. Atkins & Co., Indianapolis, Ind.
 W. C. Hendricks, R. W. Wise, Jr., Norvell-Shapleigh Hardware Company, St. Louis, Mo.
 J. E. French, Winchester Repeating Arms Company, New Haven, Conn.
 W. P. Kellogg, S. Stokes, Kellogg & Stokes, Denver, Col.
 J. M. Killin, J. M. Killin & Co., Pueblo, Col.
 L. L. Moore, R. E. Dreyer, Moore Hardware & Iron Company, Denver, Col.
 George Tritch, B. F. Tritch, George Tritch Hardware Company, Denver, Col.
 Frank W. Lynn, C. W. Wharton, J. W. Queary, S. C. Hall, Hibbard, Spencer, Bartlett & Co., Chicago.
 L. M. Knouse, the Stanley Works, New Britain, Conn.
 J. B. McKeon, Malleable Steel Range Mfg. Company, South Bend, Ind.
 B. W. Cavell, Peerless Range Company, Chicago; the Cleveland Co-operative Stove Company, Cleveland, Ohio; the Ashland Steel Range & Mfg. Company, Ashland, Ohio.
 A. D. Benway, Kettering-Benway Hardware Company, Denver.
 Alex. F. Pollock, California Powder Works, San Francisco, Cal.
 W. H. Curtin, J. H. Rohrer, Wyeth Hardware & Mfg. Company, St. Joseph, Mo.
 Geo. Mayer Hardware Company, Denver, Col.
 F. W. Calkins, Great Western Stove Company, Leavenworth, Kan.

THE business of C. C. Henry, Pittsfield, Mass., has been incorporated as the C. C. Henry Company. It is an old established business, dating back over 50 years, and has been located for 45 years in its present quarters. The purpose of incorporating was to include R. J. Brooks and T. E. Clark, who have been associated with Henry & Blain and later C. C. Henry for 10 and 8 years, respectively. C. C. Henry is the president and treasurer. R. J. Brooks vice-president and T. E. Clark secretary of the company. The establishment does principally a jobbing business in Tin, Iron and Galvanized Ware, Hardware, Paper, Twines, &c.

THE HARTFORD RUBBER WORKS COMPANY, Hartford, Conn., and 97 Chambers street, New York, manufacturer of Bicycle and Vehicle Tires and various mechanical rubber goods, has leased the store floor and two basements at 88 Chambers street for occupation by May 1 next or as much sooner as arrangements for moving its stock can be satisfactorily arranged. This change will give ample room for handling the New York and adjacent business from a good central location, the intention being to reserve the street floor for offices and carry stock on the remaining floors.

Adam Auch, for some years engaged in the Hardware business at Lesterville, S. D., has sold out to J. J. Wagner. The business will be managed for Mr. Wagner by E. J. Engel, an experienced Hardwareman.

TRADE WINNING METHODS.

This department is for the description of approved methods of carrying on and extending business, and a cordial invitation is given to merchants to co-operate in the effort to make it suggestive and of practical use to the trade.

DO YOU INVENTORY AT RETAIL?

THE following letter of inquiry and suggestion has been received from a retail Hardware merchant of southern New York. It should be of interest to the trade generally:

In a recent issue of *The Iron Age* I noted with interest the outline of the Baker Hardware Company's inventory methods. Perhaps the most important question that suggests itself to me is this: Does the Baker Company inventory at retail?

I have found upon inquiry that many of the largest and best systematized retail business houses in the country take inventory at retail. None but the executive force knows the real cost of the goods. This seems to me to be an excellent plan and one which might be put into operation, with some slight variations, in the retail Hardware store.

I find that it involves some changes in office system from those commonly employed in a retail Hardware store, but generally speaking these changes will prove beneficial in time and labor saving.

Diagram Plan is Good.

The Baker Company's system of laying out diagrams of different sections of its store is good. The plan ought to be a material aid to the office forces, as well as to the sales force which is taking the inventory. It ought to work admirably in a store which is operated with a limited force, and where every man is supposed to work in and be familiar with all of the various lines of goods.

Department Store Systems.

I find that the great department stores follow a plan which is somewhat similar to this at all times throughout the year. In these stores every department has its number or letter permanently assigned. Every item of expense and in fact every business operation which each department undergoes is carefully carried out against it in the office. This plan even extends to the pro rata rental expense and advertising outlay.

When inventory is taken the goods are counted several days in advance exactly as outlined in the Baker plan. Goods received and withdrawn are recorded in the same manner, but when the time comes for the taking down of stocks a large force of clerks is marshaled by the office management and assigned to the various departments, where the merchandise is called off at retail by the department help. Thus inventory is taken in one of these gigantic enterprises in a single evening.

Of course the retail Hardware merchant cannot accomplish this end so expeditiously with his limited working force, but I think that he can save a great deal of time if he systematizes his store and accounts somewhat in the same manner.

A Going Balance Sheet.

This system is so carefully followed in the great concerns that they can tell at almost any moment, or at least at the end of any business day, exactly where their business in its entirety or any branch of it stands. The inventory, as a matter of fact, is only a semiannual means of proving their accounts, for their books always show the exact condition of any department. There is, however, a certain amount of waste, stealage and damage which would never be ascertained if inventory were not taken.

Odd and Slow Goods.

I was particularly interested in that clause of the Baker outline which referred to shop worn goods and broken assortments. These are things which the Hard-

ware merchant should never wait for inventory to disclose. He should be eternally vigilant—and insist that his working force is equally so—to see that these goods are cleaned out as fast as they accumulate. Remote shelves and cupboards easily become junk holes if such merchandise is permitted to be pushed back out of sight. The proper place for this class of stuff is on special tables, offered at reduced prices, and the quicker it is cleaned out and the investment released from it, even if at a loss, the better off the merchant will be.

I have found these little points on systematizing of great value to me, and I hand them to you for what they are worth, thinking they may be of interest to other merchants.

SOUTHERN NEW YORK.

PERSONAL LETTERS.

From Merchants in Ohio: We have received very satisfactory results from personal letters written to prospective buyers. We usually confine these letters to one special item, but in case the people intend building we write a general letter covering the items in our line that will likely be used. Take, for instance, Refrigerators. We are constantly on the lookout for prospective buyers and write giving some of the strong points of the line we carry. We have the utmost faith in the line of goods we handle and do not hesitate to recommend it in the very strongest terms. We find it is a fact that the average person likes to get mail, and a personal letter written about one subject only usually makes something of an impression. We have been able to trace the results of these letters in a number of instances in the sale of Paints, Refrigerators, Machine Tools, Builders' Hardware, Screen Doors, Rope, Belting, Razors, &c.

To illustrate the direct and businesslike style of the letters prepared by this firm we give the following, which has reference to Barn Hardware:

We are informed that you will build a large barn. We are in position to name you very close prices on Barn Hardware. We wish to call your very special attention to a new Barn Door Hanger we have recently received. We regard this as the very best thing we have ever seen in the line of Barn Door Hangers. You can see at once by the inclosed circulars that the Hanger has all the strong points of the Hinge Hanger, besides strength and durability possessed by no Hinge Hanger. It rolls along the track easier than any Hanger made. It might be of interest to you to know that we have recently equipped the ——— plant with these Hangers. The superintendent of that concern tells us that it is the most perfect Hanger that he has ever seen. We have a working model that will interest you.

We ask you to see this new improvement before you make your purchase. Respectfully soliciting your patronage, we are, &c.

WHILE Turner & Tresch, Vincent, Ohio, bought out the Hardware business of Hayes Bros. nearly a year ago, they advise us that manufacturers and jobbers are still sending price-lists and quotations addressed to the old firm. These price-lists frequently fall into the hands of customers, to the injury of the business of Turner & Tresch, who will be pleased if manufacturers and jobbers will remove the name of the former firm from their mailing lists.

THE ELMORE MFG. COMPANY, Southington, Conn., has been incorporated under Connecticut laws to manufacture the Elmore Carpenter Tools. Richard Elliott is the president and treasurer and M. F. Mohr the secretary.

Arbour & Young is the name of a new Hardware and Harness firm at Gettysburg, S. D. The senior member of the firm has been engaged in the Harness business at Gettysburg for many years. Last fall he purchased the Tillotson Hardware stock at that place and has now sold an interest in the business to W. A. Young, a Hardwareman of experience, who in future will aid him in the management of the business.

Kentucky Retail Hardware and Stove Dealers' Association.

CONCLUDING REPORT.

Wednesday Morning Session.

THE president announced the following Question Box Committee: A. Steitler, Jr., Owensboro; Mr. McEwen, Springfield; Lister Gaines, Lawrenceburg.

Paul Wagner of Louisville, ex-secretary of the association, read a very interesting paper, entitled:

Mutual Benefits Derived from Co-operation.

He started with the assumption that the mere fact that such association existed with the objects stated in its by-laws indicated that a state of affairs existed which was unfavorable to the individual dealer. He reviewed the great strength which the steel interests, railroad systems, beef, sugar, oil and similar trusts had secured by obeying the law of co-operation and how the Hardware jobbers and manufacturers had made use of this



PAUL WAGNER.

same power. These and other influences made it imperative that the retail Hardware dealers of the country band together for their mutual benefit and protection. He commended the members who were present for the part they were taking and devoted the balance of his paper to showing the importance of winning over the other fellow. With this as a text, he said:

THE "OTHER FELLOW."

Now let us find, if possible, the cause of our friend's indifference and shortsightedness in this matter; or rather, let us prove to him that no cause whatever exists why he should not become and remain for all time of his business life a member of his State Association.

The dues of our association are \$4 per annum. Can it be possible that there is in the State of Kentucky to-day a retail Hardware merchant who would find the expenditure of such an amount oppressive to him, or a burden to his business? I can't believe it.

It is true our associations do not offer sick benefits. They do not undertake to "feed the hungry and clothe the poor." Yet they do furnish you with "food for thought," and they do clothe you with a "mantle of self respect and independence." In order to receive these and many other benefits, which a well attended and wisely organized association has to offer its members, it is essential above all that the member attend every meeting from beginning to adjournment. This will bring him in immediate contact with his fellows.

It is true he will more than likely meet the other fellow who is in business on the other street of his town; the fellow who has been cutting old established prices right and left (though it is true he sells for cash only), who introduced the delivery system in his town, who drives into the country and solicits orders from his competitors'

very customers, who advertises in his little home paper, who is identified with the Commercial Club and possibly is a member of the Town Board. How embarrassing to meet this man whom he has known for years, but not spoken a dozen pleasant words to up to this time. Had he known that this man also was a member he surely would not have come himself. Soon our member is on the floor, discussing an important question, a number of other members take part in the discussion, the other fellow has his say also, and the member finds that their ideas coincide. Other subjects come up, upon which both agree, in principle, at least, if not just exactly in the manner in which they should be applied. The two finally drift together. Our member finds that the other fellow is not so bad after all. He later learns that others who came to these meetings had been in the very same predicament, and had overcome it to their mutual satisfaction.

The president then makes his report, calling attention to the Parcels Post bill; how the Hardware manufacturers and jobbers had at first favored such a measure, if not openly and directly, at least by their indifference in the matter; how the president and the secretary of our National Association had met with these manufacturers and jobbers in conference, and by their frank and open statements caused them to take action against this unfair class legislation; how the mail order houses, though defeated in this instance, were again trying to get through Congress a bill providing for the carrying of merchandise by mail for 8 cents per pound, distance not considered, this at a cost of millions of dollars annually to our Government; how he can assist in defeating this bill by writing to his Congressman, urging him to use his vote and his influence in defeating this measure; also impressing upon the minds of his fellow townsmen the necessity of doing the same. How the catalogue houses are making inroads into his sales, through the express agents and rural mail carriers, who are, in many instances, personal friends of his, and who have perhaps never thought of the injury they are doing the merchants in their vicinity; how he can, with the assistance of these merchants, make things very unpleasant for the parties above mentioned; how, by keeping in closer touch with incoming freight, he can perhaps catch up with a jobber, from whom he has been buying merchandise for years, who is selling to a small manufacturing concern in his town one-quarter dozen Coal Shovels, one-sixth dozen Wrenches, a Pick and a Hand Saw, or to some farmer, who owes him a bill since last fall, 500 pounds of Wire, a Plow and a Grindstone; how he can get a profit on these goods (if his statements can be proved to the jobber in question), together with an excuse that the goods were sold by their Mr. So and So without their knowledge and consent; how if he individually cannot compel Mr. So and So to cease this method of increasing his sales, his State secretary, and, if necessary (which is seldom the case), the national secretary, will assist him, and 99 times out of 100, succeed.

A LOYAL MEMBER.

The secretary will then in his report review to him his work of the year past. Whew! Our new member had no idea that so much work was required of this official. What strikes him most forcibly, though, is the number of grievances or complaints he has received from the other members, together with the statement that they had all been adjusted satisfactorily to all concerned. But no, there is one jobber or manufacturer who persists in selling to consumers, and our friend is one of his customers, too. It is true he has never been guilty of this breach of principle toward him that he knows of, but what assurance has he that this is not going on unknown to him? Or, if this manufacturer or jobber so far forgets his obligations to others, will he not pursue the same methods toward him if the opportunity permits? This

sets him thinking—thinking hard—and he is determined to remain a loyal member to his association. The course he will have to pursue in this matter is plain to him.

Next in order may be a short but instructive talk from a visiting member upon that most important subject, "Mutual Hardware Fire Insurance." The speaker will explain the advantages of this kind of insurance as proved by experience and statistics compiled by similar insurance companies composed of associated lumbermen, millers and others, that have been many years in existence. He will show how a member can save from 35 to 50 per cent. of his premium money, compared with what he is now paying to old line companies. This is the only real monetary benefit a member may enjoy by being associated, and only such retailers as are affiliated with their State association may derive these benefits.

If an officer of the National Retail Hardware Dealers' Association be present he will be requested to address the assembly, and his sayings will always be instructive as well as interesting. His "private talk" will put our friend next to a great many things he never knew were going on.

Then he may hear a paper on "Some Difficulties Hardware Dealers Have to Contend With," by another fellow. This will interest him very much. It gives him an opportunity to compare his embarrassments with his neighbor's and enables him to devise with him ways that will be profitable to both.

He will listen with marked attention to the numerous discussions brought out by the Question Box. Such subjects as "How Best to Collect Old Accounts," "The Best Way to Compete with Catalogue Houses," "Should Goods be Marked in Plain Figures?" and any number of other subjects which are instructive and interesting to any live retail Hardware dealer.

CONTACT WITH JOBBERS AND MANUFACTURERS.

At the close of each session of the meeting he falls into the hands of some of the many manufacturers' and jobbers' representatives. These men have attractive displays of various kinds of merchandise and do all in their power to instruct him as to the merits of their respective lines. These moments of instruction and observation are of great value and very much appreciated by the merchants attending from the smaller towns, and in many cases lead to monetary advantage by learning what and from whom to buy, which often more than pays for the expenses incurred by attending the association meeting.

Finally, at the close of the meeting, he actually regrets that it could not be prolonged, that he must part company with the best set of fellows he has ever met in all his life. He extends his friendly hand to his competitor, with him resolves to patronize manufacturers and jobbers who sell to dealers only, to attend with him the next meeting and in the meantime to induce, if possible, the two remaining retailers of his town to accompany them. He has found that the other fellow is a man with a business sense of honor, and that by helping him and his associates he is helping himself as well.

Discussion followed, taken part in by J. Ogden of Ashland, J. W. Mahan of Lawrenceburg, U. S. Shacklett of Fulton, John W. Read of Hodgenville, A. M. Stone of Sturgis, Mr. Cabbage of Leitchfield and others.

Executive Session.

A motion was passed that it was the sense of the meeting that future conventions have three days instead of two, and as the by-laws conflicted a committee was appointed to revise the constitution and by-laws in this and other particulars. The committee consists of John W. Read, Hodgenville; B. J. Durham, Danville; J. W. Mahan, Lawrenceburg. It was instructed to submit to the secretary the amendments which it should propose, so that he could place copies in the hands of the members at least 30 days before the next session.

Mr. Shacklett read his report as delegate to the national convention at Indianapolis last year.

Secretary Sower gave a confidential talk on State and national affairs. He said that recent legislation in Kentucky had raised the license for selling Pistols and Dirks to \$100 a year, a figure that was prohibitive, giving mail order houses the bulk of that business. He spoke in favor

of a reduced price on car lots of heavy goods to retailers, and urged the united opposition of members to the proposed consolidation of third and fourth class postal matter and, indeed, of any parcels post legislation. He asked the members to write personal letters to their Congressmen and to Hon. Jesse Overstreet at Washington, expressing opposition to such legislation. The formation of local associations was recommended, and interesting details were told of the success of the St. Paul and Minneapolis local Hardware associations in overcoming difficulties and in preventing contractors from playing one dealer against another to a point of ruin.

Pistols, Blank Cartridges and Shells Discussed.

Paul Wagner discussed the matter of unfavorable legislation covering the sale of Blank Cartridges and of Pistols and Dirks. He characterized the present law prohibiting the sale of Blank Cartridges as one of the most insane pieces of legislation that ever had been perpetrated in the State, because, while it practically forbade the sale of Blank Cartridges, it left the sale of death dealing Bullet Cartridges practically unrestricted. Similarly the high license fees demanded in the State from dealers selling Pistols practically threw the sale of these dangerous weapons out of the hands of Hardware deal-



U. S. SHACKLETT.

ers, none of whom could afford to pay the license, and into the hands of irresponsible pawnshops, which would sell weapons of this kind to minors or to the most desperate characters. By far the largest business in Pistols and Dirks, however, was now going to the mail order houses and the express companies, robbing the legitimate dealers of the State of Kentucky of what was once a profitable branch of their business. The matter was referred to the Committee on Legislation with power to act.

Mr. Shacklett reviewed the Loaded Shell situation and stated that since Cartridges were sold by drug stores, grocers, racket stores and by all sorts of dealers, who sold them at cost as advertised leaders, all the profit on this class of merchandise had disappeared. He said that at the present time he could not make over 15 cents profit on \$500 worth of sales of this class of goods. The association instructed the delegate to the national convention at Minneapolis to bring this matter before the attention of that body with a view to inducing the manufacturers, who already rigidly control the wholesale price, to extend that control to the retail price as well.

R. R. Shuman of *The Iron Age* addressed the association on useful facts and ideas gleaned at conventions in other States.

Mr. Norvell's Address.

At the Wednesday afternoon session Saunders Norvell, president of the Norvell-Shapleigh Hardware Company, St. Louis, Mo., and chairman of the Joint Catalogue House Committee, addressed the meeting. He recited the events that led up to the formation of that committee

and gave a rapid outline of the work thus far accomplished. Six hundred manufacturers, he said, had already pledged themselves either to refuse to sell to catalogue houses altogether, or such as did sell would do so only on condition that they could control the prices at which they should be listed in the catalogues, the prices to be sufficiently high to permit retail dealers to buy from jobbers and sell at an adequate margin of profit. He told the members frankly that no one was so much to blame for the existence and growth of the mail order house as the retail dealer himself. The average retailer, said he, knows nothing of the creation of business. He buys his stock and sits in his store and waits for his customers to take it off his hands. He is not even showing his goods properly. The catalogue house, by its alluring illustrations and descriptions creates desires, while the average retailer only supplies desires after they have already been created from other sources.

He emphasized the fact that salesmanship was far more important to the dealer than the ability to screw down the purchase price $2\frac{1}{2}$ to 5 per cent. He repeated the statement made at other conventions that he could take any ten towns of 1000 population in the State, each having one stock of Hardware, and there would not be a variation of 5 per cent. in the cost of these stocks, item for item, while the actual selling value would vary from 25 to 50 per cent., according to the wisdom made in selection and assortment and the care taken with the goods themselves after they were stocked. He said that Hardware jobbers were making in good years only about 3 per cent. net on their sales, and that the last year they did not make that, and that it was absurd for a dealer who bought a few hundred dollars' worth a year to try to force the jobber to give him an extra 10 per cent.

He emphasized the importance of educating clerks to a realization of their duties; that a clerk was not employed to do a certain thing only, but that he was employed to give his time within certain limits to his employer, and that his time belonged to his employer to be used at his employer's will in anything in connection with the business. He urged the dealers that they and all their employees make use of the time that is now wasted; he commended the idea of local town and city associations; suggested that the local bankers could be made to wield a powerful influence in favor of local buying instead of trading with catalogue houses if the matter were properly brought to their attention, as these buyers could advise the professional men and their depositors generally against depriving local merchants of their patronage.

Needed Legislation.

During the executive session which followed the Committee on Legislation, consisting of Messrs. Durham, Cabbage and Wagner, was made a permanent committee, and its attention was called to the necessity of correcting existing laws on the subject of license for Pistols and Dirks, the sale of Blank Cartridges, the unfair laws preventing garnishment for debt, and the fact that the present State laws gave the old line insurance companies almost autocratic power in the State and prevented the formation of mutual companies, such as had been formed by Hardware companies in other States. On the garnishment question it was suggested by Mr. Mahan that this matter be taken up by each dealer with other merchants in his town, with the view to securing an amendment to the law which was to permit the garnishment of, say, 10 per cent. of the debtor's wages.

Freight Rates.

The Transportation Committee was also made a standing committee and instructed to take up the matter of freight rates as well as passenger rates.

Resolutions.

The Committee on Resolutions, consisting of U. S. Shacklett, Wm. Hinkle and John W. Read, presented resolutions of thanks to the president, secretary and Executive Committee; to *The Iron Age*; to W. R. Belknap; to the J. Stevens Arms & Tool Company, for the part taken by that firm in checking the power of mail

order houses; to jobbers and manufacturers, for their assurance of protection against retail mail order houses; to W. P. Lewis, treasurer of the National Hardware Mutual Insurance Company; to Mr. Norvell; to the Galt House; to the press of Louisville, and also the following:

Resolved, That we are individually and as a State Association opposed to any parcels post bill now before Congress. All these bills are detrimental to the interest of retail dealers, and especially in small towns, and an extra expense to the Government in its United States postal service.

Resolved, That we extend our deepest sympathies to George Watts of Georgetown, in the loss of his wife.

Resolved, That the association extend its deepest sympathies to the family of the late T. A. Howsey of Georgetown, and that the secretary be instructed to send a copy of this resolution to his widow.

Officers for 1905-1906.

The Committee on Nominations, acting in accordance with the constitution and by-laws, submitted two nominees



GEO. DEHLER.

for each office. The result of the election which followed is as follows:

PRESIDENT, J. C. Frederick, Owensboro, re-elected.

FIRST VICE-PRESIDENT, U. S. Shacklett, Fulton, to succeed J. W. Mahan.

SECOND VICE-PRESIDENT, George W. Buck, Louisville, to succeed Louis Knapp, Louisville.

TREASURER, A. Steltier, Jr., Owensboro, re-elected.

SECRETARY, John R. Sower, Frankfort, re-elected.

DELEGATE TO NATIONAL CONVENTION, John R. Sower. ALTERNATE, John S. Ogden of Ashland.

Secretary Sower was commended for his tireless industry in behalf of the association, and the convention, by rising vote, tendered its compliments to Mrs. Sower for her assistance in the good cause. A fund was also collected and turned over to the president, with instructions to purchase a suitable testimonial and present it to Mrs. Sower.

Louisville was selected as the place of next meeting, the time and hall to be selected by the Executive Committee.

How Can the Retailer Improve His Profits and His Business?

The paper of George Dehler of Louisville, on the subject, "How Can the Retailer Improve His Profits and His Business?" was read by Mr. Shuman at the request of the chairman, and the association, by rising vote, expressed its thanks to Mr. Dehler and its regret that he was prevented from attending the convention by reason of sickness. The paper, of which we print a portion, provoked an interesting discussion, particularly the matter of keeping records of the sales and profits of each individual clerk.

Mr. Dehler's paper was, in part, as follows:

The fact that the dealer should make a proper profit does not necessarily imply an undue tax upon his loyal customers. He should carry at all times a stock of goods which can be sold cheap enough to meet all competition, in

addition to the better and more profitable lines. He should keep his stock well up on profitable lines. The ease with which the dealer can communicate with his jobber or manufacturer makes it unnecessary to carry a large stock of any one article, thereby enabling him to increase his variety with the same amount of money invested. It is not always the low price of your competitor that takes your customer away. Very often the cause of his defection is the complaint that you do not carry what he wants. Stock keeping is not a simple proposition, and the dealer who is quickest to systematize his methods of keeping his stocks well supplied with goods especially adapted to the season, or, better still, anticipating the season, is the dealer most apt to get the business.

The tendency to carry a very large line of unprofitable goods because it shows a large volume of sales at the end of the month is not always a good policy. It is this class of goods which generally goes out on credit. It impairs your capital so that you cannot carry so great a variety of more profitable lines in the proper season, which you could otherwise have done. You will also find that customers who will pay your bill of \$10, \$15 or \$25 will not only refuse to pay you for the \$100 worth of Ware secured, but will actually go around your place of business to spend their cash.

SALESMEN'S RECORDS.

While I have never adopted the system, I believe that the day is rapidly approaching when we must keep a record of the profits and results obtained by each employee. It would be a very simple matter for each clerk in your establishment to have a little memorandum book with perforated leaves and make a carbon copy of every transaction. At night let him foot up his sales and profits. Offer a premium of \$2, \$3 or even \$5 to the clerk showing the best results for the month. You will find renewed life among them; each will strive more for the honor than the amount at stake. They will be on the alert to the possibility of securing a larger volume of business and correspondingly increased profit and profit averages.

We cannot afford to take a back seat and see business go to the department stores and catalogue houses, nor complain when we are not as aggressive as we know them to be. Where one's capital is sufficient to justify it I believe in thoroughly modern store fixtures, especially where the lighter lines of Hardware are sold and pushed by the dealer. This enables him to carry a much larger stock in the same space.

LINES CHANGED TOO OFTEN.

I am convinced, furthermore, that the average retailer too frequently shifts his line of goods. We could do no better than take, for example, the great jobbing houses of the country, and note that to-day they are pushing the same brands of goods which they were selling years ago. They have fought the battle and established these brands. They have spent great sums in advertising them and consider their brands as assets of the business. We rarely find a retail dealer who considers even the time he has spent in establishing certain brands. He is always ready to change when some one comes along and offers him a special concession of 2½ or 5 per cent. Would it not be better to stick to the line you are selling? Take it up with your sources of supply and say to them that a competitor is offering an article which you believe to be as good, at a little less price than theirs. You will generally find them willing to meet you on any proposition. Even if they will not, it is well to consider very seriously before making a change, as it is quite possible that the article offered you is 5 per cent. cheaper in its material or construction.

ADDING NEW LINES.

As to the question of new lines that can be added by the retailer let me repeat that the successful jobbing house usually sets a most excellent example. Turn through their great catalogues and see the additions they have made, especially such articles as Paints, Varnishes, Oils, Iron Beds, and so on. There are, of course, many goods illustrated by jobber and manufacturer for which the demand is too limited to justify you in carrying them

in stock. But if possible you should have illustrations and prices systematically arranged so that your customer can order through you rather than send direct to catalogue houses. Especially is this true of mechanics', blacksmiths' and agricultural tools, household furnishings, &c. The mechanic who a few years ago was satisfied with a No. 2 Shingling Hatchet to-day feels that his tool chest is not complete without at least two sizes of each of the several patterns.

To sum up the whole thing in a few words: Keep your stocks complete on seasonable goods. Constantly add new lines and be aggressive in bringing them to the attention of your customers.

Secretary's Report.

Secretary Sower's report was as follows:

In submitting my first annual report to this, our fifth annual convention, I want to thank the members and our able and most worthy president for their hearty and untiring support. I have had the advice of our president from time to time during the year, and have found him ever ready to give freely of his time in advancing



J. R. SOWER.

the best interests of our association, and while we have not always accomplished what we expected, we have made good progress. Your secretary has exchanged letters and circulars with his fellow State secretaries and has profited by this pleasant correspondence. The trade papers have shown their interest in our association work by their letters of inquiry, and have generously offered their columns for association announcements.

A FEW GRIEVANCES

have been reported, all of which I believe have been satisfactorily adjusted. I mailed out 500 copies of the reprint of the report of our last annual meeting, donated by *The Iron Age*. During the year I sent out about 2800 circular letters with membership blanks inclosed. I am pleased to state that we have added materially to our membership, and I believe by the time our next meeting rolls around we will be well to the front in association work. At the secretaries' meeting, held during the National convention at Indianapolis, in March last, one of the principal questions brought up was, How to get new members? And after an extended discussion it was decided that personal solicitation was much more effective and but little more expensive in the long run than correspondence. I would suggest that this plan be considered at this meeting.

I wrote about 125 letters to post office officials, inclosing postal, asking for the names of Hardware dealers in their towns, and in this way was enabled to reach almost every dealer in the State with circular letters. I wrote about 250 letters soliciting advertising, &c., for our programme. You will notice that our programme

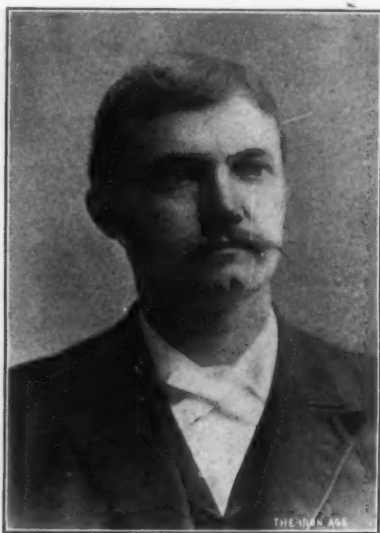
has been generously patronized as an advertising medium, and I sincerely hope that our members will show their appreciation of the favors of our patrons.

EXHIBITS.

As this was the first meeting of the association that was held in quarters offering suitable space for exhibitors, and because of large association meetings held at other points on the same days, only a few houses were represented. The association in every way made it plain that it desired larger exhibits in future years and unusual efforts were put forth to make the exhibits at the Galt House profitable to their proprietors. The result was that the manufacturers and jobbers who were present were gratified at the business booked and at the spirit of co-operation which was manifested by the association.

The largest exhibitor was the BELKNAP HARDWARE & MFG. COMPANY, who had two showrooms in the basement, in which were shown Cutlery, Paints, Saddlery, Stoves, Gasoline Engines, besides a general line of Hardware. This exhibit was in charge of M. R. Porter, assistant secretary; H. S. Perkins, assistant treasurer, and Wm. Berger, Mr. Harmon, R. I. James, Mr. Sandell and Mr. Summers.

THE WHITE LILY WASHER COMPANY, Davenport, Iowa, was represented by Theodore Rosche and R. P. Searle. It displayed a sample of the 1905 machine, and at the end of the last session



A. STEITTLER, JR.

of the association this machine fell by lot to J. W. Hackney, the Cincinnati representative of Wm. Resor & Co.

E. C. ATKINS & Co., Indianapolis, Ind., had a showroom in which were shown samples of their line. They were represented by E. W. Clarke and John O. Tate and gave their aluminum Comb souvenir.

THE DOVER MFG. COMPANY, Canal Dover, Ohio, represented by M. H. Snyder, showed samples of its line of Asbestos Sad Irons.

THE F. & L. KAHN COMPANY, Hamilton, Ohio, represented by Charles E. Draper, had its line of Estate Stoves and Ranges.

WM. RESOR & Co., Cincinnati, Ohio, kept open house in parlors adjoining the assembly hall, in charge of J. W. Hackney. Each day members of the association were presented with carnations or Marechal Niel roses for their button holes. Mr. Hackney also entertained the officers of the association at a luncheon.

THE FISHER-LEAF COMPANY, Louisville, Ky., was represented by George G. Minn, vice-president, and W. J. Yager.

THE ROCHESTER STAMPING COMPANY and the ROBESON CUTLERY COMPANY, Rochester, N. Y., were represented by W. W. McCubbe.

PITTSBURGH STEEL COMPANY, Pittsburgh, Pa., showed samples of its welded Woven Wire Fencing. It was represented by W. P. Shirley. Souvenir gun metal Watch Fobs were presented to the callers.

HIBBARD, SPENCER, BARTLETT & Co., Chicago, had a display filling two large rooms, in charge of G. S. Logue and George T. Wright. Its display included Cutlery, Enameled Ware, Silver-ware and other special lines.

THE AMERICAN STEEL & WIRE COMPANY, Chicago, was represented by Louis Drautman, traveling representative.

THE H. D. SMITH & COMPANY, Plantsville, Conn., distributed, through officers of the association, samples of its Perfect Handle Screw Driver, the president reading a letter from the firm in which it stated that apathy of leading jobbers had caused the firm to conclude to get the ear of the retailer by this means, and that if the favorite jobber of any merchant did not carry them it would give him the name of a jobber who did.

THE NORVELL-SHAIPLEIGH HARDWARE COMPANY, St. Louis,

Mo., through Mr. Norvell, distributed World's Fair souvenir Cups.

PRICE-LISTS, CIRCULARS, &c.

Manufacturers in Hardware and related lines are requested to send us duplicate copies of catalogues, price-lists, &c., one copy for our Catalogue Department in New York and another for our London office; and at the same time to call our attention to any new goods or additions to their lines, of which appropriate mention will be made besides the brief reference to the catalogue or price-list in this column.

HARBIMAN PLOW & HANDLE COMPANY, Harriman, Tenn.: Calendar, with thermometer attached, calling attention to the company's line of Agricultural Implements.

THE WHITMAN & BARNES MFG. COMPANY, 111 Chambers street, New York: 16-page illustrated descriptive booklet on the various desirable features of the W. & B. Rubber Horseshoe, which the company manufactures largely at its Akron, Ohio, factory.

THE NEW DEPARTURE MFG. COMPANY, Bristol, Conn., and 113 Chambers street, New York, has just issued a 24-page illustrated descriptive catalogue with embossed illuminated cover, showing large assortments in styles and sizes of Door, Tea, Office and Automobile Bells, many of which are highly ornamental. The various finishes are tabulated and designated by numbers and letters, and there are helpful tables showing gross and net weights and measurements of original cases of Door Bells and Call Bells.

THE KEYSER MFG. COMPANY, Chattanooga, Tenn.: Catalogue illustrating and describing Odorless Refrigerators. These are shown in a variety of styles and sizes. Refrigerators are made to order to cover all requirements.

DIAMOND SAW & STAMPING WORKS, Buffalo, N. Y.: Sterling Hack Saws and Hack Saw Frames. The Frames are made in a variety of lengths and up to 10 inches in depth. Frames are also made adjustable in some styles.

PETERS PUMP COMPANY, Kewanee, Ill.: Revised illustrated catalogue and price-list No. 26, relating to Double and Single Acting Force Pumps, Set Length Suction, Cistern Force, Pitcher Spout, Double Cylinder Tank and Tubular Well Cylinder Pumps. A separate pamphlet is devoted to Corn Planters with drill attachments.

WESTERN STEEL GATE COMPANY, Two Rivers, Wis.: Illustrated catalogue relating to Steel Gates, including Automatic, Drive, Stock, Ranch, Field, Village and Walk Gates, Cemetery Arches, Wrought Iron Fencing, Ornamental Wire Fabric, Post Hole Digger, &c. The company is at present supplying railroad companies with an especially designed Steel Farm Gate.

BUTLER BROS., 495 and 497 Broadway, New York: Sheet No. 3778, devoted to illustrations and descriptions of goods which will be sold during the month of February only at the special prices named in the sheet.

THE HARRINGTON CUTLERY COMPANY, 15 South Mary street, Southbridge, Mass.: Catalogue of Harrington and Dexter Knives, including Shoe Knives, Rubber Knives, Cloth Blades, Butcher Knives, Carving Knives, Kitchen Knives, Putty, Oyster, Paper Hangers' Knives, Broom, Banana and Oilcloth Knives, Grape Pruner, Cork Knife, Lemon Knife, Cigar Knives, Cuban Cigar Blades, Board Buffers and various sets of Knives. New features of the line are an Oyster Blade, Clam Knife, round point Paper Hangers' Knife, Feather Curler, Beef Slicer, a Turkey Carver, a Carver or Hunting Knife, several Butchers' Knives, including a Hog Sticking Knife, a cloth cutting machine Blade and the Peerless Extension Blade Handle.

WILLIAM A. ROGERS, 12 Warren street, New York: Printed matter setting forth the desirability of his Silver Plated Ware for premium purposes, including the most inexpensive Plated Knives, Forks and Spoons to the highest grade of goods plated on a 21 per cent. nickel silver base.

BRITISH LETTER.

Offices of *The Iron Age*, HASTINGS HOUSE,
NORFOLK ST., LONDON, W. C., February 4, 1905.

The Week's Hardware Trade.

GOOD trade rather lags, but none the less it cannot be described as bad. There is distinct recovery in the Brass trades, and in some instances overtime is worked. Another hopeful feature is the extension of Tube works. Makers of Timmen's Furniture are also busy. The condition of the metal market constitutes a great drawback. Copper continues at as high a level. There is not so much objection to this as to the uncertainty which always surrounds the Copper market when prices are high. There is better demand for Galvanized Hollow Ware, although the exceptional price of Spelter hampers operations. For the rest, retailers generally are cautious in buying, and it is recognized that the spending capacity of the country, or at least the working class section, is below normal.

The Cutlery trade of Sheffield has been in an uncertain condition for months. While some manufacturers have complained bitterly of the state of trade, others have admitted that they have been fairly well employed. One house has been busy for months on Admiralty orders, and the same firm is likely to be engaged on similar work for some time to come. Some army orders have also been placed, but these are not very large and the price paid is exceedingly "close." Makers of Table Cutlery find it very difficult to secure orders for Ivory Hafted Ware, except from the very best houses. Pen and Pocket Blades are in very small request, and manufacturers of Scissors have little to do, this branch of business being almost wholly captured by Germany, whose Scissors and Razors are very much in demand in England at the present time. The Americans are also making competition very keen, and the result is that the prices are so cut down that Sheffield makers have difficulty in making their goods at the prices merchants are willing to pay. The demand for general Cutlery for the South American markets and also for Australia and Canada has greatly improved. For some time the South Americans and many of our colonists have been sending orders for Cutlery Ware, and inquiries for better class goods have been more frequent than for some time past.

Safety Oil Lamp Competition.

Six months ago I drew attention to the possibility of some enterprising American lamp manufacturer capturing a prize in connection with the Grocers' Exhibition. The report of the judges intrusted with the duty of examining and testing the oil lamps competing for the prize of £150 offered by the promoters of the Grocers' Exhibition, held at the Agricultural Hall in September last, has now been issued. Some 55 lamps were sent in, but after careful and exhaustive trial the judges regret that no lamp satisfies the conditions laid down, nor has the standard of practical value reached in the 1903 competition been attained. The prize therefore remains unawarded.

Indian Merchandise Marks Act.

In the report of the Sheffield Chamber of Commerce there is an interesting reference to the Indian Merchandise Marks act. In the last report the council stated that they had approached the Indian Government with a view to secure the amendment of the Indian Merchandise Marks act, so as to prevent goods bearing either the mark itself or a close imitation of the mark or name of a British trader being imported into India whenever there was added to the mark an indication of the origin of the goods. The reply of the Indian Government denied that the proper construction of the Indian Act would admit of any such importations of falsely marked goods, admitted that the practice of the Indian Custom Houses in this direction had been wrong, and stated that instructions had been given to the Custom Houses to revise its practice in the required direction.

Co-operation in the Export Trade.

Exporting manufacturers are showing interest in the possibilities of co-operative export organization. The

desire of the manufacturers for direct connection with the ultimate distributor, or even with the consumer, is a natural one, and it has been suggested that various manufacturers of different kinds could advantageously combine to push their wares directly in foreign countries. There is, perhaps, nothing very novel about this in essence, for as a matter of fact many manufacturers have agents abroad who work on commission for themselves and others. There is great virtue in "direct touch" for certain kinds of trade, and with all regard to the ability and intelligence of the merchant class it seems that information and direction are in some cases more likely to be obtained from a representative than from a customer. Of course, everything depends upon the organization. If it be faulty the jobber will do the work better than the manufacturer, but if a thoroughly satisfactory scheme can be evolved then probably the manufacturer will be able advantageously to get into contact with the ultimate distributor. A manufacturer who has argued very strongly for a manufacturers' combination has worked out in detail a scheme which is certainly interesting and indicates possibilities.

A German System of Opening Up Business.

It appears that German firms, either singly or several firms combined, choose some young man in their employ whom they consider suitable and send him out to the country with which they wish to do business. This man receives a salary for the first few years, as well as a share in any profits that may be made, but in addition to this he is allowed to draw on them at his discretion for a considerable sum of money.

GENERAL INSTRUCTIONS.—His instructions are to settle himself modestly in the principal town, with the avowed intention of setting up a little general business for himself. If possible, he is to obtain regular employment until he is able to establish himself. He is then to give orders to all the regular commercial travelers of all nations who frequent the place, for small quantities of the goods they usually supply there. In a year's time he is probably in a position to know what class of each kind of goods sells best and the reasons for the preference. He has also noticed what improvements could be made, as well as the details concerning packing, weight, color, size, &c., that play so important a part in the sale of goods in foreign countries.

SENDING HOME SAMPLES.—During all this time he is constantly sending home to his employers samples of the goods and explanations how to make them still more suitable to the market. In the first year the little store probably pays its way, and in two or three years it is not only making a profit, but a quantity of really trustworthy information has been obtained concerning the goods in general use in the country. During this time the goods are being produced at home, with the improvements recommended, so that the home firms are in a position to compete with any foreigners.

ESTABLISHMENT OF OTHER BRANCHES.—Their representative then establishes branches in other towns, and the extension of the business simply depends upon the capabilities and good fortune of the man employed. Men sent abroad under these conditions have a real incentive to work, as, instead of being simply employees, they are working for themselves from the first, with the prospect of gaining a good and independent position. A further advantage in this system is that even if the man starts an independent business as soon as he is able, as so many Germans do, the connection still remains, and the knowledge gained, even in a few years, of the actual requirements of the country is worth the money expended. In the case of the complete failure of the man sent out the loss need not be a serious one if divided among several firms who have allowed a credit of a few hundred pounds each.

The Hardware store of Bredberg & Silksens and the plumbing business of Smith & Halls, Dell Rapids, S. D., have been merged, the two firms having organized a stock company under the name of the Dell Rapids Hardware & Construction Company.

HINTS TO HARDWARE EXPORTERS.

FROM A SPECIAL CORRESPONDENT.

THE exports of American Hardware are now so vast that it becomes timely in the interests of this important and growing trade to draw attention to certain general considerations which affect it. In doing so regard has been had to the suggestions of experienced travelers, who, although for the most part rather reticent in respect of their particular lines of goods and the localities in which they find their markets, are free to impart what relates to the general interests of the trade.

Price Not the Sole Criterion.

In the first place, what they nearly all agree upon is that the price is not the sole criterion upon which American Hardware is judged by the foreign buyer and which governs him in his choice between American and British or American and German goods. The superior make and finish of American Hardware are a great recommendation in its favor. It is made for the most part, nay, almost entirely, by machinery. The parts are exactly fitted to each other; the whole is nicely put together and finished; every article of the same class is precisely alike; the goods are accurately represented by the sample; there are no imperfect items, and the purchaser feels confident that in buying a lot he is only buying a multiple of the sample shown.

Standardized Goods.

These excellent conditions are the result of machine production and standardizing. No human hands can make two pieces or parts exactly alike in texture, size, shape, color, edge and finish. Only the machine can do it, and the machine is what the American manufacturer employs to do his work. Even the machine is not perfect. It can form and shape, but it cannot see. There are minute imperfections and flaws in all materials which the machine cannot detect and reject, and which therefore demand the oversight of intelligence, skill, taste and judgment. This is what the American mechanic, more than any other, possesses; for being protected in his labor and better rewarded for it, he becomes a better educated and more competent workman. Nay, he is more than a workman—the machine does the work; the American mechanic is an artist. His hands are no longer employed. Steam and electricity have taken their place. His function is more intellectual. If observation, technical skill, taste and judgment distinguish the artist from the artisan, then the use of machinery, the standardizing of goods and superior rewards to the mechanic have made the American workman an artist.

The Metric System of Measurements.

The metric system has now become so widely introduced in the various countries of the world that it is hardly too much to say that if our exported Hardware (we say nothing here of the domestic, because the subject opens too wide a field of discussion) were all made by the metric system it would sweep the entire commercial field, not only in South America, Asia and Africa, but also in many parts of Europe. Now that we are a long way ahead of German and French manufacturers in the production of Hardware is a favorable time to consider this subject. There may come a day, though we by no means apprehend it, when by adopting our methods our rivals may meet us with equal weapons in the shape of equally well made goods. The metrics will then have it all their own way, and it will be too late for us to change the measurements of our exported Hardware. It is a vexatious subject and a big one, and all the more for these reasons should it be considered in good time.

Freedom from Export Taxes.

Our basic laws forbid the imposition of export taxes. The Constitution says: "No tax or duty shall be laid on articles exported from any State." This provision of law is so familiar to every American that he never deems it worth while to mention it to a foreign buyer. But to the latter it is often of the utmost importance. In all cases where the price quoted is that of the goods in New York or any other American market it should be explained that, with the exception of the charge for packing cases, it is the price f. o. b., and is liable to no export or other duty. Even when the price is that of the goods

at the place of purchase it is sometimes not a bad card to remind the purchaser that it includes no export duty, and that therefore he is getting the full value of his money in goods and not in taxes or duties of export.

Neat and Attractive Packages.

Very little needs to be said on this subject. Already American goods are as a rule put up in an attractive manner. Putting goods up as though they were intended for a present often converts them into presentable articles and so increases their sale and consumption. Our Hardware manufacturers know this as well as any other, and the practice has already done much to render their goods preferable to the foreign buyer.

Packing Cases.

The size and strength of American packing cases are often a source of anxiety to the distant purchaser. As a rule our packages are too large and the cases too weak. We have a great variety of excellent timber to choose from, yet, with a pertinacity that can only arise from custom, we almost always choose pine, and some of it not of the best. The selection of a suitable timber for export packing cases and the best form of constructing them should not be a subject beneath the attention of the export merchant. The English packing cases of oak timber, with upright braces and cross cleats, meet the most approval in foreign countries; but they are comparatively expensive, and after being emptied are of no use, for it is almost impossible to open them without injury. Some modification of this type, together with the use of screws to fasten the lid, or the inclusion of a nail extractor in every large invoice has been suggested. The more common use of rough hard wood barrels for packing Hardware is another suggestion. But every traveling agent insists upon small cases, because, even when the goods are bound to a sea port or railway station where the size or weight of the package is (within reasonable limits) of no importance, they may often be sold by the package for interior towns or stations to which the only transport is by mule or camel. In such instances the size and weight of the package become of the utmost consequence. Tin or zinc lined cases are seldom needed in the Hardware trade, but the use of tarred paper, or some equivalent, as a protection against moisture, sweating or accidental exposure to rain or dew in transit is always to be recommended.

Traveling Agents.

Next in importance to producing a superior article of Hardware, attractively put up and securely packed, is its rapid and profitable sale. It is needless to say that the first step in this process is to bring the article to the favorable notice of the buyer, and this is best secured by advertising in the trade journals and the prudent distribution of circulars. The next step is the employment of suitable traveling agents to explain, conciliate and persuade—in short, to negotiate. All sorts of expedients have been resorted to with the object to dispense with the commercial traveler, but without success. From Cosmo Indicopleustes, who was an Alexandrian commercial traveler of the sixth century, down to the latest type of "representative," the trade of the world has been done, as it probably could only have been done, by the traveling agent. Its latest development is the modern hustler, of rapid movement and restless enterprise, humorous, jocular and communicative. Foreign competition demands a more sedate class of representative, with a courteous bearing and a fair command of languages. The best equipped salesmen at present for the European trade are the Germans. As a rule they are more experienced, better informed and more courteous than the English. They have a good command of the northern languages, such as German, Scandinavian, Russian and Hungarian. But they are usually deficient in the Latin tongues, such as French, Spanish and Italian, the most important languages in the South American and Levant trades. But politeness often goes as far as languages in trading with foreign merchants. This accomplishment is of course not to be picked up, but must result from intuition and good training. The observant traveler on the great ocean steamships already sees much improvement in this respect. The American commercial agent is distinctly improving and the trade is improving with him.

SIXTEENTH EDITION STANDARD HARDWARE LISTS.*

SOME 13 years ago a modest little volume of 12 or 14 pages, entitled "The Iron Age Standard Hardware Lists," made its appearance on the market, the only book of its kind in existence, and immediately made a place for itself among the Hardware trade. It has now reached the sixteenth edition, and has become a volume of

tion is also called to the changes in the list, so that those who have purchased books can readily correct them. This edition, which has just come from the press, exceeds the former edition by 34 pages, the increase resulting from the revision and enlargement of former lists, and the addition of much entirely new matter. The new lists relate to the following among other lines:

- Horse and Mule Shoes.
- Axes (with Axe group list).
- Adzes.

80

Gate Hinges. Per Doz. Sets.

CLARK'S OR SHEPARD'S.				
Nos.		1	2	3
Hinges with Latches		\$6.00	8.00	12.00
Hinges only		4.00	6.00	9.00
Latches only		2.00	2.00	3.00

Shutter and Blind Hinges. Per Doz.

Nos.	3	2 1/2	2	1 1/2	1	0	00	000	4	5
Lull & Porter, Shutter	\$1.80	2.25	2.60	2.80	3.00	6.00	10.00	20.00	1.80	2.80
1868 O. P., Blind	6.25				3.50					12.50

Strap and T Hinges. List Dec. 20, 1904. Per doz. Pr. or per lb.

Inches	3	4	5	6	7	8	9	10	12	14	16	18
Light strap	\$0.85	1.10	1.35	1.70	2.10	2.40		3.30	4.90	6.40	7.90	
Heavy strap		1.60	2.15	.15		.13 1/2		.13	.13	.13	.13	
Light T	0.75	.80	1.00	1.20	1.35	1.50	1.90	2.20	3.00	3.90	5.15	
Heavy T		0.90	1.05	1.25		1.55		2.30	3.20	4.45	5.40	5.75
Extra heavy T		1.80	2.45	.15		.14 1/2		.14	.14	.14	.14	
Long chest				1.15		1.50		1.65	2.45	3.00		
Corrugated:												
Heavy strap		1.60	2.15	2.90		4.65		7.20	11.20			
Extra heavy T		1.80	2.45	3.15		5.20		7.10				
Harl's Patent:												
Heavy strap		1.65	2.10	2.90		4.75		7.10	10.00	12.50		
Extra heavy T			2.85	3.50		5.60		8.10	11.70	13.85	15.85	

Wrought Iron Goods. List March 17, 1892.

Inch	1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3	3 1/2
Hooks and Staples					7.00		7.50		8.00	9.00
Staples only		1.20	1.20	1.25	1.50	1.70	2.00	2.35	2.65	3.20
Inch	4	4 1/4	5	5 1/4	6	7	8	9	10	12
Hooks and Staples	10.00	11.00	12.00	13.00	14.00	22.00	25.00	28.00	33.00	36.00
Staples only	5.25	6.50	8.00							
Hooks and Staples	0.84		.90		1.00	1.10	1.30	1.70	2.00	2.64
Hooks and Staples, with Hook			1.20		1.40	1.60	1.80	2.20	2.50	3.80

A Page of The Iron Age Standard Hardware Lists.

167 pages, containing over 300 lists. These are designated as "Standard Lists," as they are in general use by the manufacturers of the goods to which they relate. One valuable feature of the book is the fact that it is under constant revision, as changes in the lists occur from time to time, so that it is ALWAYS REVISED UP TO DATE OF PURCHASE. In the reading columns of *The Iron Age* atten-

* The Iron Age Standard Hardware Lists. Sixteenth Edition, Revised to Date of Purchase. Published by David Williams Company, 232-238 William street, New York. Price \$1, post-paid.

- Augers and Auger Bits.
- Blocks for Rope Straps.
- Brass Cocks.
- Brass Fittings.
- Cast Iron Fittings.
- Malleable Iron Fittings.
- Window Glass.
- Comparative list of Iron and Steel Planes.
- Comparative list of Adjustable Planes.
- High Brass Rods.
- Extras on Sisal and Manila Rope.
- Standard Iron Body Valves.
- Radiator Valves.

Bench and Pattern Makers' Rules.
Board Measures.
Log Measures.
Yard Sticks.

The lists are arranged alphabetically, while an eight-page index makes ready reference easy. The lists are intended for use in book form, or to be cut out and inserted in price books. For this purpose they are printed on one side only of the paper. They have been prepared with special view to compactness of arrangement and convenience of reference. The accompanying full size illustration shows a page of "The Iron Age Standard Hardware Lists." From this an excellent idea may be formed of the arrangement and utility of this collection of List prices.

AMONG THE HARDWARE TRADE.

Palmer Brothers, dealers in Hardware, Paints, Varnishes, &c., Chester, Pa., have been succeeded by Palmer & Gayley.

The Perry Hardware Company, Cuthbert, Ga., has sold out its business to S. D. Zuber & Sons.

Miller & Davis, for years engaged in the Hardware business at De Smet, S. D., have dissolved partnership, I. J. Miller purchasing the interest of S. E. Davis. Mr. Miller will continue the business under his own name.

Stevens & Wilson, Hardware dealers of Letcher, S. D., have added a complete harness department to their store.

The Lyman Hardware Company, Oacoma, S. D., which was organized by Albert Williamson and Henry Smith, has started a new store at Lyman, a small town west of Oacoma.

A. D. Brown has disposed of his Hardware, Stove and Implement business at Santa Rosa, Cal., to Ketterlin Bros., who have made a number of improvements in the store.

The Hill & Inman Company, Modena, Mo., has been succeeded by Woods & Hill.

Wachter, Arnholt & Co., have recently succeeded Wachter, Wenke & Co., dealers in Hardware, Implements and furniture, Pender, Neb.

The Hardware business of Frank Hassler, Perham, Minn., has been absorbed by A. Marckel and Kukowski Bros. of the same town, who have divided up the stock.

J. J. Hopper has purchased an interest in the Folk & Hopper Hardware and Stove business in Bowling Green, Ohio.

Joseph Steck has retired from the Herman Cole Hardware Company, Alton, Ill., and Mr. Cole and Henry Bockstrop now constitute the firm.

Rolmer & Rinehart, Hardware merchants, Waynesboro, Pa., dissolved partnership on the 1st inst., the former retiring. Daniel Rinehart will continue the business under his own name.

William A. Barber has succeeded Motley, McKell & Barber in the Hardware, Stove and Paint business at Mitchell, S. D.

The Kenyon Hardware Company, Dallas, Texas, has disposed of its wholesale and retail business to H. W. Thornhill & Co.

Paxton Hardware Company, Snyder, Texas, has been incorporated with a capital of \$20,000 for the prosecution of the wholesale and retail business in Shelf and Heavy

Hardware, Stoves, Implements, Sporting Goods, Wagons and Buggies, Wind Mills, &c.

R. W. Hall has purchased the business formerly conducted by Ketch Hardware Company, Richmond, Ind.

C. W. and T. G. Ewing have purchased the entire Paden interest in the Paden-Ewing Hardware Company, Gadsden, Ala., and will continue the business under the name of the Ewing Hardware Company. The capital stock of the new company will be placed at \$60,000. T. G. Ewing will be president, with C. W. Ewing as treasurer. The company's business is wholesale and retail, about three-fourths wholesale.

W. J. Speckman, Terry, S. D., has purchased of J. E. Stewart his stock of Hardware, furniture, Mining Supplies, &c.

The Schweers Hardware Company has been incorporated at Shawano, Wis., by John S. Schweers, E. D. Schweers, August Anderson and E. D. Reinhard.

Proseus & Fisk have just succeeded C. E. Leggett in the general Hardware business at Newark, N. J.

T. E. Rockford is successor to McCoy & Harrison in the Hardware, Stove, Implement, Paint and Sporting Goods business at Leigh, Neb.

The Oklahoma City Hardware Company, Oklahoma City, O. T., has succeeded Armstrong Hardware Company, with a capital of \$500,000, an increase of \$100,000. The incorporators are S. E. and R. A. Clarkson, A. W. Boyd, S. H. Brown, W. H. Wick, W. M. Parker and W. F. Wilson, Mr. Clarkson being president; Mr. Boyd, vice-president; Mr. Vick, secretary and treasurer, and S. H. Brown, buyer. The company will conduct an exclusively jobbing business.

W. W. Conde Hardware Company, Watertown, N. Y., has been incorporated with a capital of \$130,000, the directors being W. W. Conde, Catharine E. Conde, Burton C. Wilmot and Frank W. Clark. Mr. Conde is president of the company, and Mr. Wilmot secretary and treasurer. No change has been made in the management of the business, as the Messrs. Wilmot and Clark have been associated with the establishment for the past 20 and 15 years, respectively.

J. D. Lare & Son, Dixon, Ohio, have disposed of their Hardware, Stove, Implement, Buggy and Wagon business to M. A. Clem, who continues at the old stand.

The Crobaugh & Dahm Hardware Company, Tiffin, Ohio, has been organized with \$50,000 capital stock to carry on the wholesale and retail business in Shelf and Heavy Hardware, Agricultural Implements, Sporting Goods, Paints, &c.

The Adam Decker Hardware Company has been incorporated at St. Paul, Minn., with a capital stock of \$100,000. The incorporators are Paul Quehl, George Peckern and Wm. Zschau.

The Barnquist Hardware Company, Dayton, Iowa, has been incorporated with a capital stock of \$15,000.

H. W. Darling & Co., Boston, Mass., have disposed of their retail Hardware business to H. M. Sanders & Co., 27 Elliot street.

Ketch Hardware Company, dealer in Hardware, Stoves, Paints, &c., Richmond, Ind., has sold its business to Robert W. Hall, who continues at the old stand.

Kezar & Morkassel are successors to W. N. Powell in the Hardware business at Warren, Minn.

A. R. Wolf Hardware Company has recently embarked in business at Altoona, Pa., handling at retail Shelf and Heavy Hardware, Implements, Stoves, Tinware, Paints, Sporting Goods, &c.

MISCELLANEOUS NOTES.

W. A. Bates Mfg. Company.

W. A. Bates Mfg. Company succeeds C. A. Gee Mfg. Company of Cuba, N. Y., and will continue the manufacture of Gee's Sure Catch minnow trap. This is made of galvanized screen wire and sheet steel, of cylindrical shape, with an opening in the end cone to admit the bait.

Grill Work on Screen Doors.

The Higgin Mfg. Company, Newport, Ky., is manufacturing high grade screen doors in connection with which metal grill work is used for ornamentation and for the protection of the wire cloth in the lower part of the doors. The grill work is of a variety of patterns, covering the screen wire of the lower panel and with some styles of doors covering also the lower portion of the upper panel, where the screen wire is in danger of becoming damaged by being pushed against with the hand when opening the door. Both single and double doors are made with the grill work.

Lloyd Mfg. Company.

Lloyd Mfg. Company, Minneapolis, Minn., is manufacturing nearly 100 different styles of baby buggies, go-carts, &c., in rattan and steel frames. The company is also making a line of rattan chairs and furniture.

The B. & S. Adjustable S Wrench.

The accompanying cut represents an 8-inch adjustable S-wrench, made entirely of drop forgings, embodying the advantages of a solid machine wrench together with



The B. & S. Adjustable S Wrench.

the convenience of an adjustable wrench. The thumb screw fastens the adjusting nut securely when the wrench has been adjusted to the opening desired. The sliding jaw is fitted in a double groove, which adds to the strength of the tool. The wrench opens $1\frac{1}{4}$ inches, and is put on the market by the Billings & Spencer Company, Hartford, Conn.

Ideal Muzzle Protector.

Ideal Mfg. Company, New Haven, Conn., is putting on the market the muzzle protector for 30-40 Krag rifle, as



Ideal Muzzle Protector.

shown herewith. It is designed to permit cleaning rifle barrels with cleaning rod introduced at the muzzle, and to prevent the extreme end of the muzzle becoming worn out of true, or bell muzzled, which interferes

with uniform and accurate shooting. The illustration is cut away to show the interior construction. None other than the regular service rod, as issued with the rifle, is required, and the cleaning may be done from the muzzle, as the hole through the protector is so small that the rod cannot touch the inner edge of the rifling near the muzzle. The protector is made a close fit to the outside of the muzzle of the 30-40 Krag, and it is held firmly by three knurled screws. In the point of each screw is inserted a hard leather disk to prevent injury to the outside of the barrel and to hold the protector firmly in place while the barrel is being cleaned.

New Hollow Set Screw.

Hammacher, Schlemmer & Co., 127-133 Fourth avenue, New York, have just put on the market a group of hollow set screws, as shown in the accompanying illustrations. Fig. 2 is a sectional view of the set screw showing the hexagonal hole, from which it gets the name of hollow set screw and by which it is screwed into place by a suitable case hardened steel wrench furnished with the set screws. Fig. 1 shows the method of locking a collar to a shaft, leaving no projecting head to catch workmen's clothing and hence obviating the necessity for protectors and hubs on revolving shafts to prevent accident, as required by United States factory inspectors. These screws are designed to replace both headless and square head

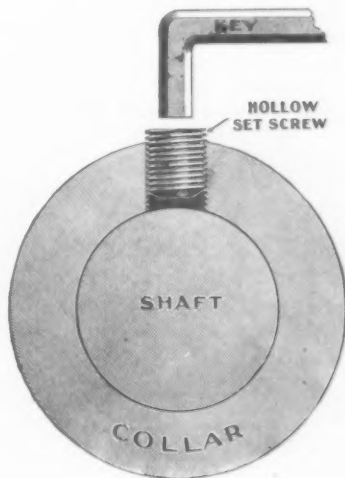


Fig. 1.—Method of Using Hollow Set Screw.



Fig. 2.—Transverse and Longitudinal Sections.

set screws, and one length of each size is all that is required for any depth of hole. The screws are made of steel and are drawn with the hexagonal hole, which insures elasticity and prevents loosening during changes of temperature. By putting two screws in a hole they are locked and the thread strain is equalized. Another important point, obvious to users of screws, is that short screws do not lose the lead of thread as do long ones; hence this form of screw sets at once at the bottom of the hole. Deep holes need only be threaded at the bottom for a distance equal to the length of the hollow set screw; the remainder may be countersunk. No shoulder is needed on collars and no countersinking, thus effecting a saving of material and labor. This style of screw may be sealed against rust and corrosion by filling the hole with wax, which is especially valuable for use in water on propellers of steamers or yachts, or for similar purposes. The power on the wrench is applied equally the entire length of the screw, so there is little or no torsional strain and the force is applied largely at the point of the screw where it is required. The screw has United States standard threads and cup point. The sizes are $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$ and $\frac{3}{4}$ inch diameters, with lengths of $\frac{1}{2}$, 9-16, 11-16 and $\frac{3}{4}$ inch, respectively, the threads of which are 16, 12 and 13, 11, 10 to the inch, in the order named. The first two sizes are packed 100 in a box, and the two large sizes 50 in a box, with a key in each lot.

Hand Knurling Tool No. 95.

The hand knurling tool shown in the accompanying cut has a forged steel shank, polished and nickel plated, a cocobolo handle, hollow, with a screw cap, making a convenient receptacle for holding extra knurls when not in use. The three knurls furnished in this set, those most used, are as follows: One fine cross, one medium cross, one medium straight, as shown in the cut. The knurls are $\frac{5}{8}$ inch in diameter, $\frac{3}{8}$ inch thick. The holder is not adjustable for knurls of different thicknesses. As the shank is solid it will not spring easily, so will do better work. The total length of the tool is 10 inches. The

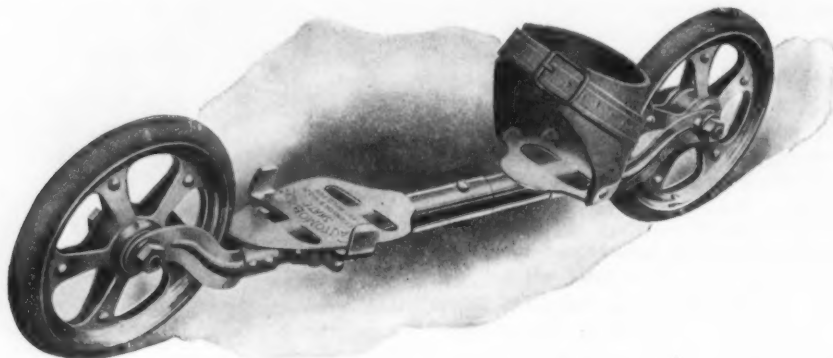


Hand Knurling Tool No. 95.

handle and three knurls are packed, as one set, in a box. Handles and any of the knurls may be purchased separately, if desired. The tool is offered by Goodell-Pratt Company, Greenfield, Mass.

Improved Automobile Cycle Skate.

The Cycle Skate & Sporting Goods Company, 37 Park street, New York, has just put on the market the new form of automobile cycle skate here shown. It is made with 5-inch solid cushion rubber tires, the



Improved Automobile Cycle Skate.

former style having had 4-inch wheels; both sizes now being made with all the improvements here described. The constituent parts are formed in dies from sheet steel and Shelby seamless tubing is used. An important feature of the new skate is the positive fastening of the telescoping tubes, which are adjustable from 10 to 12 inches, inclusive, there being one hole through the outer tube and a series of holes at suitable distances through the inner tube, by means of which a round head screw passes through both tubes and is held rigidly by nut and curved washer underneath. If by any means the nut should be lost the union of front and rear sections is secure regardless of clamp and strap fastenings. The forks, forward and back, while made now of thinner stock, are of better grade, more symmetrical in shape and are hardened and tempered, thus making them lighter and stronger. The russet heel straps are now fastened by an improved process which is stronger and handsomer in appearance. There is also an important change in the clamp fastening which keeps the forward double threaded clamp screw underneath the front plate in position. The tires are rigidly held in position by substantial inner lugs, which are a part of the tire itself, screws with nut fastenings passing through the lugs and clamping steel spokes and tire in one solid wheel, which runs on steel ball bearings, having hardened steel cups and cones. The parts of both 4 and 5 inch sizes are made on machinery specially built for the purpose and are stand-

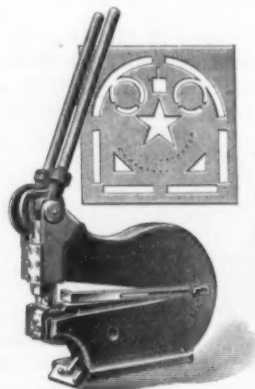
ardized, parts being interchangeable. All metal parts are polished and nicked, the entire skate as now perfected being more simple and stronger. These skates are designed for young people and adults, for use on asphalt surfaces or touring across country on macadamized or other fairly good roads.

Little Blacksmith Combination Deep Throat Punch and Shear No. 16.

J. F. Kidder Mfg. Company, Burlington, Vt., is offering the combination punch and shear shown herewith.

The design above the machine was punched and cut on the machine from No. 12 gauge iron, the circle shown being 4 inches in diameter. The machine was designed to accomplish a class of work not usually done on machines and to take the place of expensive presses and dies where such are needed for jobbing or experimental work. It will cut the inside and outside of practically any sized circle and will shear pieces for elbows or angles of any degree. The punch or shear when not in use is up and out of the way of work and so does not conflict with the other. The machine not only combines a punch and shear, but with it press work can be done of practically

any design without any readjustment. The punch is fitted with the company's quick changing punches and dies and will punch from 1-16 to 9-16 inch, advancing in



Little Blacksmith Combination Deep Throat Punch and Shear No. 16.

thirty-seconds. The depth of the machine's throat is 16 inches, and it has a capacity up to punching a $\frac{1}{2}$ -inch hole in No. 12 gauge iron and shearing the same gauge iron.

The Anderson Automobile Jack.

W. H. Anderson & Sons, Detroit, Mich., are putting on the market the automobile jack to which the accompanying cuts refer. The one on the left hand in Fig. 1 is a view of the front and the other of the rear of the jack. In Fig. 2 are illustrated working parts showing the principle of the device. The spiral worm engages the teeth in the lifting bar and each revolution of the worm raises the lifting bar one tooth. The lever handle is geared to give increased power, and, when not in use, hangs close to the side of the jack and is used either to raise or lower the load by moving the ratchet pawl either up



Fig. 1.—The Anderson Automobile Jack.

or down as desired. The small hand wheel shown in the rear view of the jack is used for quickly raising the bar to the desired height or for lowering the bar to allow the jack to be placed under the axle or piece to be lifted. With the toe lift a load can be raised from the ground 6 inches. Among the working features of the jack the following are mentioned: That it is positive in action, that it has no dogs or cams to hold the load, that the load is always under absolute control, with no risk of the load dropping or the jack slipping; that it occupies a small space, with a large lifting capacity, and that

it will not rattle when carried in a repair kit. The height of the jack when lowered is 11½ inches and when raised is 17½ inches. It weighs 8 pounds and is fur-



Fig. 2.—Parts of Anderson Jack.

nished in malleable iron with black finish; also of brass in natural finish, in antique brass finish or nickel plated.

Leather Wheel Casters.

C. E. Sovereign Company, Rockford, Ill., is offering casters with leather wheels, one style of which is shown herewith. These are particularly adapted to use on pol-



Leather Wheel Casters.

ished hard wood floors, the leather wheel being smooth and noiseless. The casters are made with Philadelphia stem, also with bed stem for wooden and iron beds.

PAINTS, OILS AND COLORS

White Lead, Zinc, &c.—

Lead, English white, in Oil..	9½¢ @ 9½¢
Lead, American white, in Oil:	
Lots of 500 lb or over.....	@ 6½¢
Lots less than 500 lb.....	@ 7¢
In Barrels.....	@ 6¢
Lead, White, in oil, 25 lb tin	
pails, add to keg price.....	@ ½¢
Lead, White, in oil, 12½ lb tin	
pails, add to keg price.....	@ 1¢
Lead, White, in oil, 1 to 5 lb	
ass'ted tins, add to keg price ..	@ 1½¢
Lead, American, Terms: For lots 12	
tons and over ¼¢ rebate; and 2¢ for	
cash if paid in 15 days from date of	
invoice; for lots of 500 lbs. and over	
2¢ for cash if paid in 15 days from	
date of invoice, for lots of less than	
500 lbs. net.....	@ 6¢
Lead, White, Dry in bbls.....	@ 6¢
Zinc, American, dry.....	4½¢ @ 4½¢
Zinc, French.....	
Paris, Red Seal, dry.....	8½¢
Paris, Green Seal, dry.....	3½¢
Antwerp, Red Seal, dry.....	7½¢
Antwerp, Green Seal, dry.....	8½¢
Zinc, V. M. French, in Poppy Oil:	
Lots of 1 ton and over.....	11½¢ @ 12½¢
Lots of less than 1 ton.....	12½¢ @ 12½¢
Zinc, V. M. French, in Poppy Oil:	
Red Seal:	
Lots of 1 ton and over.....	10½¢ @ 11½¢
Lots of less than 1 ton.....	10½¢ @ 11½¢
Discounts—French Zinc—Discounts	
to buyers of 10 bbl. lots of one or mixed	
grades, 1%; 25 bbls., 2%; 50 bbls., 4%.	

Dry Colors—

Black, Carbon.....	5 @ 10
Black, Drop, Amer.....	4 @ 6
Black, Drop, Eng.....	5 @ 15
Black, Ivory.....	16 @ 20
Blue, Celestial.....	4 @ 6
Blue, Chinese.....	27 @ 32
Blue, Prussian.....	2 @ 30
Blue, Ultramarine.....	4½¢ @ 15
Brown, Spanish.....	½¢ @ 1
Carmine, No. 40.....	33.55¢ @ 40
Green, Chrome, ordinary.....	3½¢ @ 6

Green, Chrome, pure.....	17 @ 25
Lead, Red, bbls., ½ bbls. and kegs:	
Lots 500 lb or over.....	@ 6½¢
Lots less than 500 lb.....	@ 7¢
Litharge, bbls., ½ bbls. and kegs:	
Lots 500 lb or over.....	@ 6½¢
Lots less than 500 lb.....	@ 7¢
Ocher, American.....	10¢ @ 16.00
Orcher, American Golden.....	2½¢ @ 3½¢
Orcher, French.....	1½¢ @ 2½¢
Orcher, Foreign Golden.....	3 @ 4
Orange Mineral, English.....	8½¢ @ 10½¢
Orange Mineral, French.....	10½¢ @ 11½¢
Orange Mineral, German.....	7½¢ @ 10
Orange Mineral, American.....	8 @ 8½¢
Red, Indian, English.....	4½¢ @ 8½¢
Red, Indian, American.....	3 @ 3½¢
Red, Turkey, English.....	4 @ 10
Red, Tuscan, English.....	7 @ 10
Red, Venetian, Amer.....	100 lb \$0.50 @ 1.25
Red Venetian, English, 100 lb	\$1.15 @ 1.75
Sienna, Italian, Burnt and	
Powdered.....	3 @ 9½¢
Sienna, Ital., Raw Powd.....	3 @ 6½¢
Sienna, American, Raw.....	1½¢ @ 2
Sienna, American, Burnt and	
Powdered.....	1½¢ @ 2
Talc, French.....	100 lb \$20.00 @ 20.00
Talc, American.....	100 lb 16.00 @ 25.00
Terra Alba, French.....	100 lb 90 @ 1.00
Terra Alba, English.....	100 lb 90 @ 1.00
Terra Alba, American.....	100 lb 100 @ 1.00
No. 1.....	60 @ 70
Terra Alba, American, 100 lb	
No. 2.....	45 @ 50
Umber, T'key, Bnt. & Pow.....	2½¢ @ 3½¢
Umber, Turkey, Raw & Pow.....	2½¢ @ 3½¢
Umber, Burnt, Amer.....	1½¢ @ 2
Umber, Raw, Amer.....	1½¢ @ 2
Yellow, Chrome.....	11 @ 14
Vermilion, American Lead.....	10 @ 25
Vermilion, Quicksilver, bulk.....	@ 65
Vermilion, Quicksilver, bag.....	@ 66
Vermilion, English, Import.....	15 @ 16
Vermilion, Chinese.....	\$0.90 @ 1.00

Colors in Oil—

Black, Lampblack.....	12 @ 14
Blue, Chinese.....	26 @ 46
Blue, Prussian.....	22 @ 36
Blue, Ultramarine.....	15 @ 16
Brown, Vandyke.....	11 @ 14

Green, Chrome.....	10 @ 15
Green, Paris.....	@ 24
Sienna, Raw.....	12 @ 15
Sienna, Burnt.....	12 @ 15
Umber, Raw.....	11 @ 14
Umber, Burnt.....	11 @ 14

Miscellaneous—

Barytes, White, Foreign.....	100 lb \$17.50 @ 19.00
Barytes, Amer. floated.....	100 lb 17.00 @ 18.50
Barytes, Crude, No. 1.....	100 lb 10.00 @ 11.00
Chalk, in bulk.....	100 lb 3.00 @ 3.25
China, Clay, English.....	100 lb 11.00 @ 17.00
Cobalt, Oxide.....	100 lb 2.50 @ 3.50
Whiting, Common.....	100 lb .45 @ .48
Whiting, Gilders.....	100 lb .55 @ .57
Whiting, Ex. Gilders.....	100 lb .58 @ .60

Putty—

In bladders.....	\$1.65 @ 1.70
In cans, 1 lb to 5 lb.....	1.05 @ 1.15
In cans, 12½ to 50 lb.....	2.00 @ 2.90
In cans, 12½ to 50 lb.....	1.40 @ 1.55

Spirits Turpentine—

In Oil bbls.....	55 @ 55½
In machine bbls.....	55½ @ 56

Glue—

Cabinet.....	11 @ 15
Common Bone.....	6 @ 8
Extra White.....	18 @ 24
Foot Stock, White.....	11 @ 14
Foot Stock, Brown.....	7 @ 10
German Hide.....	12 @ 18
French.....	10 @ 10
Irish Grade.....	13 @ 16
Low Grade.....	8 @ 11
Medium White.....	14 @ 17

Gum Shellac—

Bleached Commercial.....	33 @ 34
Bone Dried.....	43 @ 44
Button.....	26 @ 45
Diamond 1.....	53 @ 54
Fine Orange.....	43 @ 45
D. C. Garnet.....	36 @ 40
D. C.....	@ 42
Octagon B.....	50 @ 51
T. N.....	35 @ 36

V. S. O.....

Animal, Fish and Vegetable Oils—

Linseed, City, raw.....	43 @ 44
Linseed, City, boiled.....	45 @ 46
Linseed, State and West'n Raw.....	41 @ 42
Linseed, raw Calcutta seed.....	@ 55
Lard, Prime, Winter.....	56 @ 58
Lard, Extra No. 1.....	48 @ 49
Lard, No. 2.....	36 @ 38
Cotton-seed, Crude, f.o.b. mills.....	16 @ 17
Cotton-seed, Summer Yellow,	
Prime.....	24 @ 24½
Cotton-seed, Summer Yellow	
off grades.....	21 @ 24½
Sperm, Crude.....	60 @ 61
Sperm, Natural Spring.....	@ 61
Sperm, Bleached Spring.....	@ 61
Sperm, Natural Winter.....	62 @ 64
Sperm, Bleached Winter.....	65 @ 67
Tallow, Prime.....	48 @ 50
Whale, Crude.....	48 @ 50
Whale, Natural Winter.....	45 @ 46
Whale, Bleached Winter.....	47 @ 48
Menhaden, Brown, Strained.....	27 @ 28
Menhaden, Light, Strained.....	28 @ 29
Menhaden, Bleached Winter.....	30 @ 32
Menhaden, Ex-Bld. Winter.....	32 @ 33
Menhaden, Southern.....	19½ @ 20
Cocconut, Ceylon.....	10 lb 6½¢ @ 6½¢
Cocconut, Coch.....	10 lb 7½¢ @ 7½¢
Cod, Domestic Prime.....	38 @ 38
Cod, Newfoundland.....	39 @ 41
Red Whale.....	31 @ 33
Red Saponified.....	10 lb 4½¢ @ 5
Olive, Italian, bbls.....	54 @ 58
Neatsfoot, prime.....	50 @ 51
Palm, prime Logos.....	10 lb 5½¢ @ 5½¢

Mineral Oils—

Black, 29 gravity, 25¢ cold test.....	10½¢ @ 11½¢
Black, 29 gravity, 15 cold test.....	11½¢ @ 12½¢
Black, Summer.....	10½¢ @ 11½¢
Cylinder, light filtered.....	18 @ 19
Cylinder, dark filtered.....	16 @ 17
Paraffine, 903-907 gravity.....	12½¢ @ 13
Paraffine, 903 gravity.....	11½¢ @ 12
Paraffine, 883 gravity.....	9¼¢ @ 9½
Paraffine, Red.....	11½¢ @ 15
In small lots ¼¢ advance.	

Current Hardware Prices.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33 $\frac{1}{2}$ @ 33 $\frac{1}{2}$ & 10% signifies

that the price of the goods in question ranges from 33 $\frac{1}{2}$ per cent. discount to 33 $\frac{1}{2}$ and 10 per cent. discount.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE DIRECTORY, issued May, 1904, which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters, Blind—

Domestic, $\frac{1}{2}$ doz. \$3.00.....33 $\frac{1}{2}$ %
North's.....10%
Zimmerman's—See Fasteners, Blind.

Window Stop—

Ives' Patent.....35%
Taplin's Perfection.....35%

Ammunition—See Caps, Cartridges, Shells, &c.

Anvils—American—

Eagle Anvils..... $\frac{1}{2}$ lb 7 $\frac{1}{4}$ @7 $\frac{1}{4}$ %
Hay-Budden, Wrought.....5@9 $\frac{3}{4}$ %
Horseshoe brand, Wrought.....5@9 $\frac{3}{4}$ %
Trenton..... $\frac{1}{2}$ lb 9@9 $\frac{3}{4}$ %

Imported—

Peter Wright & Sons..... $\frac{1}{2}$ lb 10 $\frac{1}{2}$ %
Anvil, Vise and Drill—

Millers Falls Co., \$18.00.....15&10%

Apple Parers—See Parers, Apple, &c.

Aprons, Blacksmiths'—

Hull Bros. Co.....30&10%
Livingston Nail Co.....33 $\frac{1}{2}$ %

Augers and Bits—

Com. Double Spur.....70&10%
Boring Mach. Augers.....70&10%
Car Bits, 12-in. twist.....50&10%
Jennings' Pattern.....70&10%
Ford's Auger and Car Bits.....40&5%
Forstner Pat. Auger Bits.....25%
C. E. Jennings & Co.:
No. 10 ext. lip. R. Jennings' list.....25%
No. 30, R. Jennings' list.....40&7 $\frac{1}{2}$ %
Russell Jennings.....25&10&2 $\frac{1}{2}$ %
L'Hommedieu Car Bits.....15%
Mayhew's Countersink Bits.....45%
Millers Falls.....50&2&7 $\frac{1}{2}$ %
Ohio Tool Co.'s Bailey Auger and Car Bits.....20%
Pugh's Black.....20%
Pugh's Jennings' Pattern.....35%
Snell's Auger Bits.....60%
Snell's Bell Hangers' Bits.....60%
Snell's Car Bits, 12-in. twist.....60%
Wright's Jennings' Bits (R. Jennings' list).....50%

Bit Stock Drills—

See Drills, Twist.

Expansive Bits—

Clark's small, \$18; large, \$26.....50&10%
Clark's Pattern, No. 1, $\frac{1}{2}$ doz. \$25
No. 2, \$18.....50&10%
Ford's Clark's Pattern.....50&10&60%
C. E. Jennings & Co., Steer's Pat.....25%
Swan's.....60%

Gimlet Bits—

Common Dble. Cut..... $\frac{1}{2}$ doz. \$3.25
German Pattern, Nos. 1 to 10,
\$4.60; 11 to 13, \$5.75

Hollow Augers—

Bonney Pat., per doz. \$9.00@10.00
Ames.....25&10%
New Patent.....25&10%
Universal.....20%
Wood's Universal.....25%

Ship Augers and Bits—

Ford's.....40%
C. E. Jennings & Co.:
L'Hommedieu's.....15%
Watrous'.....35&5%
Ohio Tool Co.'s.....40%
Snell's.....40%

Awl Hafts—See Hafts, Awl.

Awls—

Brad Awls:
Handled.....gro. \$2.75@3.00
Unh'dled, Sh'dered.....gro. \$3@3.66
Unh'dled, Patent.....gro. \$6@7.04
Peg Awls:
Unh'dled, Patent.....gro. \$1@3 $\frac{1}{4}$ %
Unh'dled, Sh'dered.....gro. \$5@7.04
Scratch Awls:
Handled, Com.....gro. \$3.50@4.00
Handled, Socket.....gro. \$11.50@12.00
Hurwood.....40%

Awl and Tool Sets—See Sets, Awl and Tool.

Axes—

Single Bit, base weights. (up to 3 $\frac{1}{2}$ lb.)
First Quality.....\$6.50
Second Quality.....\$6.00
NOTE.—Heavier Weights add Extras as per regular schedule.
Axle Grease—
See Grease, Axle

Axles—

Concord, Loose Collar.....4 $\frac{1}{2}$ @4 $\frac{1}{2}$ %
Concord, Solid Collar.....4 $\frac{1}{2}$ @5 $\frac{1}{4}$ %
No. 1 Common, Loose.....3 $\frac{1}{4}$ @3 $\frac{1}{4}$ %
No. 1 $\frac{1}{2}$ Com., New Styles.....4 $\frac{1}{2}$ %
No. 2 Solid Collar.....4@4 $\frac{1}{2}$ %
Nos. 7, 8, 11 and 12.....75@75&5%
Nos. 13 to 14.....70&10@75&5%
Nos. 15 to 18.....75&10@75&10&5%
Nos. 19 to 22.....75&10@75&10&5%

Boxes, Axle—

Common and Concord, not turned lb. 4 $\frac{1}{2}$ @5 $\frac{1}{4}$ %
Common and Concord, turned lb. 5 $\frac{1}{4}$ @6 $\frac{1}{4}$ %
Half Patent.....lb. 8 $\frac{1}{2}$ @9 $\frac{1}{4}$ %

Bait—

Hendryx.....20%
A Bait.....25%
B Bait.....25%
Competitor Bait.....20&5%

Balances—

Caldwell new list.....50%
Pullman.....50&10@60%

Spring—

Spring Balances.....60@60&5%
Chatillon's:
Light Spg. Balances.....40&10%
Straight Balances.....40%
Circular Balances.....50%
Large Dial.....30%

Barb Wire—See Wire, Barb.

Bars—

Steel Crowbars, 10 to 40 lb. per lb., 2 $\frac{1}{4}$ @3 $\frac{1}{4}$ %

Towel—

No. 10 Ideal, Nickel Plate..... $\frac{1}{2}$ gro. \$8.50

Beams, Scale—

Scale Beams.....40&10@50%
Chatillon's No. 1.....30%
Chatillon's No. 2.....40%

Beaters, Carpet—

Holt-Lyon Co.:
No. 12 Wire Coppered $\frac{1}{2}$ doz. \$0.85;
Tinned.....\$1.00
No. 11 Wire Coppered $\frac{1}{2}$ doz. \$1.10;
Tinned.....\$1.20
No. 10 Wire Galvanized..... $\frac{1}{2}$ doz. \$1.75
Western W. G. Co.:
No. 1 Electric..... $\frac{1}{2}$ gro. \$7.80
No. 2 Buffalo..... $\frac{1}{2}$ gro. \$9.00
No. 3 Perfection Dust..... $\frac{1}{2}$ gro. \$8.00

Egg—

Holt-Lyon Co.:
Holt, No. A, Japanned..... $\frac{1}{2}$ doz. \$1.20
Holt, No. 1, Tinned..... $\frac{1}{2}$ doz. \$1.50
Holt, No. E, Japanned..... $\frac{1}{2}$ doz. \$2.00
Holt, No. 2, Tinned..... $\frac{1}{2}$ doz. \$2.25
Lyon, No. 2, Japanned..... $\frac{1}{2}$ doz. \$1.25
Lyon, No. 3, Japanned..... $\frac{1}{2}$ doz. \$1.50
Taplin Mfg. Co.:
No. 60 Improved Dover..... $\frac{1}{2}$ gro. \$6.50
No. 75 Improved Dover..... $\frac{1}{2}$ gro. \$6.50
No. 100 Improved Dover..... $\frac{1}{2}$ gro. \$7.00
No. 102 Improved Dover, Tin'd.....\$8.50
No. 150 Improved Dover, Hotel.....\$15.00
No. 152 Imp'd Dover, Hotel, T'd.....\$17.00
No. 200 Imp'd Dover Tumbler.....\$25.00
No. 202 Imp'd Dover Tumbler, T'd.....\$25.00
No. 300 Imp'd Dover Mammoth..... $\frac{1}{2}$ doz. \$25.00
Western W. G. Co., Buffalo.....\$7.00
Wonder (S. S. & Co.), $\frac{1}{2}$ gro. net, \$6.00

Bellows—

Blacksmith, Standard List.....60&10@70&10%

Blacksmiths'—

Inch. 30 32 34 36 38 40
Each \$3.25 3.50 4.00 4.50 5.00 5.75
Extra Length:
Each \$3.75 4.25 4.75 5.25 6.00 7.00

Hand—

Inch. 6 7 8 9 10
Doz. \$4.50 5.00 5.50 6.00 6.50

Molders—

Inch. 9 10 11 12 14
Doz. \$8.00 9.00 10.50 12.50 14.50

Bells—Cow—

Ordinary goods.....75&5@75&10&5%
High grade.....70&10@70&10&5%
Jersey.....75&10%
Texas Star.....50%

Door—

Abbe's Gong.....45%
Burton Gong.....50%
Home, R. & E. Mfg. Co.'s.....55&10%
Lever and Pull, Sargent's.....60&10&10%
Trip Gong.....50&10@50&10&5%
Yankee Gong.....50%

Hand—

Hand Bells, Polished, Brass.....60&5@60&10&5%

White Metal.....60%
Nickel Plated.....50&10@50&10&5%
Swiss.....60&5@60&7 $\frac{1}{2}$ %
Cone's Globe Hand Bells.....33 $\frac{1}{2}$ @35%
Silver Chime.....33 $\frac{1}{2}$ @35%

Miscellaneous—

Farm Bells.....lb. 2 $\frac{1}{4}$ %
Steel Alloy Church and School.....50&10&5@60&5%
American Tube & Stamping Co.:
Gongs.....75%
Table Call Bells.....50&5&10%

Belting—Leather—

Extra Heavy, Short Lap.....60&5@60&5%
Regular Short Lap.....65&10@70%
Standard.....70&5@70&10%
Light Standard.....70&10@75%
Cut Leather Lacing.....60&10%
Leather Lacing Sides, per sq. ft. 17 $\frac{1}{2}$ @18 $\frac{1}{2}$ %

Rubber—

Agricultural (Low Grade).....75@75&5%

Common Standard.....70&70&10%
Standard.....65&70%
Extra.....60&5@60&10%
High Grade.....50&5@50&10%

Bench Stops—

See Stops, Bench

Benders and Upsetters, Tire—

Detroit Perfected Tire Bender.....40%
Green River Tire Benders and Upsetters.....20%
Detroit Stoddard's Lightning Tire Upsetters, No. 1, \$4.25; No. 2, \$7.25; No. 3, \$10.50; No. 4, \$16.25; No. 5, \$20.50.
Bicycle Goods—
John S. Leng's Son's 1902 List:
Chain.....50%
Parts.....50%
Spokes.....50%
Tubes.....60%

Bits—

Auger, Gimlet, Bit Stock Drills, &c.—See Augers and Bits.

Blocks—Tackle—

Common Wooden.....70&10@75&5%
Hartz St. Tackle Blocks.....50&50&5%
Hollow Steel Blocks, with Ford's Patent Sheaves.....50&10%
Lane's Patent Automatic Lock and Junior.....30%
Stowell's Novelty, Mal. Iron.....50&10%
Stowell's Self Loading.....60%
See also Machines, Hoisting.

Boards, Stove—

Zinc, Crystal, &c.....30&10@40&10%

Boards, Wash—

See Washboards.

Bobs, Plumb—

Keuffel & Esser Co.....38 $\frac{1}{2}$ %

Bolts—

Carriage, Machine, &c.—

Common Carriage (cut thread):
% & 6 and smaller.....75&2 $\frac{1}{2}$ %
Larger and longer.....70%
Phila. Eagle \$3.00 list May 24, '99

Bolt Ends, list Feb. 14, '95 70&5%
Machine, % & 4 and smaller 75&5%
Machine, larger and longer 70&7 $\frac{1}{2}$ %

Door and Shutter—

Cast Iron Barrel, Japanned, Round Brass Knob:
Inch. 3 4 5 6 8
Per doz. \$0.30 .35 .45 .56 .75
Cast Iron Spring Foot, Jap'd:
Inch. 6 8 10
Per doz. \$1.15 1.40 2.00
Cast Iron Chain, Flat, Japanned:
Inch. 6 8 10
Per doz. \$0.95 1.25 1.55
Cast Iron Shutter, Japanned, Brass Knobs:
Inch. 6 8 10
Per doz. \$0.80 .90 1.20
Wrt Barrel Jap'd.....80&80&10%
Wrt "Bronzed".....50&50&10%
Wrt Spring.....70&10@70&10&10%
Wrt Shutter.....50&5@50&10&5%
Wrt Square Neck.....75@75&10%

Wrt Square 66 $\frac{1}{2}$ %@10@66 $\frac{1}{2}$ %@10&10%

Ives' Patent Door.....60%

Stove and Plow—

Plow.....70&10@70&10&5%

Stove.....82 $\frac{1}{2}$ @10@82 $\frac{1}{2}$ @10&5%

Tire—

Common.....72 $\frac{1}{2}$ %
Norway Iron.....80%
American Screw Company:
Norway Phila., list Oct. 16, '84.....80%
Eagle Phila., list Oct. 16, '84.....82 $\frac{1}{2}$ %
Bay State, list Dec. 28, '89.....72 $\frac{1}{2}$ %
Franklin Moore Co.:
Norway Phila., list Oct. 16, '84.....80%
Eagle Phila., list Oct. 16, '84.....82 $\frac{1}{2}$ %
Eclipse, list Dec. 28, '89.....72 $\frac{1}{2}$ %
Russell, Burdall & Ward Bolt & Nut Co.:
Empire, list Dec. 28, '89.....72 $\frac{1}{2}$ %
Norway Phila., list Oct. 16, '84.....80%
Upon Nut Co.:
Tire Bolts.....72 $\frac{1}{2}$ %

Borers, Tap—

Borers Tap, Ring, with Handle:
Inch. 1 $\frac{1}{4}$ 1 $\frac{1}{2}$ 1 $\frac{3}{4}$ 2
Per doz. \$4.80 5.60 6.40 8.00
Inch. 2 $\frac{1}{4}$ 2 $\frac{1}{2}$ 2 $\frac{3}{4}$ 3
Per doz. \$5.65 6.45 7.25 8.00
Enterprise Mfg. Co., No. 1, \$1.25; No. 2, \$1.65; No. 3, \$2.50 each.....25%

Boxes, Mitre—

C. E. Jennings & Co.....30%
Langdon.....15&10%
Perfection..... $\frac{1}{2}$ doz. \$30.00
Schatz.....40%

Braces—

Common Ball American \$1.25@1.50
Barber.....50&10&10&6&10%
Fray's Genuine Spofford's.....60%
Fray's No. 70 to 120, 81 to 123, 207 to 414.....60%
C. E. Jennings & Co.....50&5%
Mayhew's Hatchet.....60%
Mayhew's Quick Action Hay Pat.....50%
Muller's Fall Drill Braces.....25&10%
P. S. & W. Co., Peck's Pat. 60&10&65%

Brackets—

Wrought Steel.....80&10@80&10&5%
Bradley's Wire Shelf:
Full cases.....80&10&10%
Broken cases.....80&10%
Griffin's Pressed Steel.....50%
Griffin's Folding Brackets.....70&10%
Stowell's Cast Shelf.....30%
Stowell's Sink.....30%
Western W. G. Co., Wire.....60&10%

Bright Wire Goods—

See Wire and Wire Goods.

Broilers—

Western W. G. Co.....80%
Wire Goods Co.....75@75&10%

Buckets, Galvanized—

Price per dozen,
Quart. 19 12 11
Water, Regular.....1.40 1.70 1.90
Water, Heavy.....3.40 3.70 3.80
Fire, Rd. Bottom.....2.30 2.55 2.95
Well.....2.55 2.87 3.15

Bucks, Saw—

Hoosier..... $\frac{1}{2}$ gro. \$36.00

Bull Rings—See Rings, Bull

Butts—Brass—

Wrought, list Sept., '96.....30%
Cast Brass, Tiebout's.....50%

Cast Iron—

Fast Joint, Broad.....40&10@50%
Fast Joint, Narrow.....40&10@50%
Loose Joint.....70&10@75%
Loose Pin.....70&10@75%
Mayer's Hinges.....70&10@75%
Parliament Butts.....70&10@75%

Wrought Steel—

Table and Back Flaps.....75%
Narrow and Broad.....75%
Inside Blind.....75%
Loose Pin.....70%
Loose Pin, Jap'd.....70&10%
Loose Pin, Ball and Steeple.....85%
Tin.....70&10%
Japanned Ball Tip Butts.....70&10%
Bronzed, Wrt., Nar. and Inside Blind Butts.....53&10%

Cages, Bird—

Hendryx, Brass:
3000, 5000, 1100 series.....5%
1200 series.....33 $\frac{1}{2}$ %
200, 300, 600 and 900 series.....40&10%
Hendryx, Bronze:
700, 800 series.....40&10%
Hendryx, Enameled.....40&10%

Calipers—See Compasses.**Calks, Toe and Heel—**

Blunt, 1 prong.....	per lb. 4¢
Sharp, 1 prong.....	per lb. 4¢
Blunt, 2 prong.....	per lb. 4¢
Sharp, 2 prong.....	per lb. 4¢
Blunt Toe.....	per lb. 3.65¢
Sharp Toe.....	per lb. 4.15¢

Can Openers—See *Openers, Can.***Cans, Milk—**

Illinois Pattern.....	5	8	10 gal.
New York Pattern.....	1.50	2.20	2.45 each.
Baltimore Pattern.....	1.50	2.20	2.45 each.
Indiana.....	1.35	1.60	1.75 each.

Cans, Oil—

Standard Family Oil Cans:		
5 gal.	5	10 gal.
15 gal.	60.00	120.00 gro., net.

Caps, Percussion—

Elmer E. B.....	52¢/55¢
G. D.....	per M 34¢/35¢
F. L.....	per M 40¢/42¢
G. E.....	per M 38¢/50¢
Masket.....	per M 62¢/63¢

Primers—

Berdan Primers, \$2 per M.....	80%
B. L. Caps (Sturtevant Shells)	
\$2 per M.....	20%
All other primers per M.....	\$1.52¢/1.60

Cartridges—

Blank Cartridges:	
22 C. F., \$5.50.....	10¢/5¢
22 C. F., \$7.00.....	10¢/5¢
22 cal. Rim, \$1.50.....	10¢/5¢
22 cal. Rim, \$2.75.....	10¢/5¢
B. B. Caps, Con. Ball, Regd. \$1.50	
B. B. Caps, Round Ball.....	\$1.19
Central Fire.....	25¢
Target and Sporting Rifle.....	15¢/5¢
Primed Shells and Bullets.....	15¢/10¢
Rim Fire, Sporting.....	50¢
Rim Fire, Military.....	15¢/5¢

Casters—

Red.....	70¢/70¢/10¢
Plate.....	60¢/10¢/60¢/10¢/5¢
Philadelphia.....	75¢/75¢/10¢
Arme, Ball Bearing.....	33¢
Boss.....	70¢/10¢
Boss Anti-Friction.....	70¢/10¢
Gen. Roller Bearing.....	80¢
Martin's Patent (Phoenix).....	45¢
Standard Ball Bearing.....	45¢
Tucker's Patent low list.....	30¢
Yale (Double Wheel) low list.....	50¢

Cattle Leaders—See *Leaders, Cattle.***Chain, Coil—**

American Coil, Straight Link:	
3-16 1/4 5-16 3/4 7-16 1/2 9-16	
7-16 5/16 4-15 3-15 3-20 3-15	
3-10 3-10 2-95 1 to 1 1/4 inch.	
German Coil.....	60¢/10¢/60¢/10¢/70¢

Halters and Ties—

Halter Chains.....	60¢/10¢/60¢/10¢/10¢
German Pattern Halter Chains,	
list July 24, '97.....	60¢/10¢/10¢
Cat Ties.....	60¢/60¢/10¢

Trace, Wagon, &c.—

Traces, Western Standard: 100 pr.	
6-6-3, Straight, with ring.....	\$23.50
6-6-2, Straight, with ring.....	\$21.50
6-6-2, Straight, with ring.....	\$22.00
6-6-2, Straight, with ring.....	\$22.00
NOTE—Add 2¢ per pair for Hooks.	
Trace 2¢ per pair higher than	
Straight Link.....	

Trace, Wagon and Fancy

Chains.....	60¢/5¢/60¢/10¢/5¢
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Miscellaneous—

Jack Chain, list July 10, '93:	
Iron.....	60¢/10¢/60¢/10¢/5¢
Brass.....	60¢/10¢/60¢/10¢/10¢
Safety Chain.....	75¢/75¢/10¢/5¢
Gal. Pump Chain.....	lb. 5¢/5¢/4¢
Court Mfg. Co.:	
Breast.....	40¢/2¢
Halter.....	40¢/2¢
Reel.....	40¢/2¢
Rein.....	40¢/2¢
Station.....	40¢/2¢
Court Sled, Works.....	70¢
Halter.....	70¢
Hold Back.....	70¢
Rein.....	70¢
Am. Coll and Halters.....	40¢/40¢/5¢
Am. Cow Ties.....	45¢/50¢
Eureka Coll and Halter.....	45¢/50¢/5¢
Niagara Coll and Halter.....	45¢/50¢/5¢
Niagara Cow Ties.....	45¢/50¢/10¢/5¢
Niagara Wire Dog Chains.....	45¢/50¢/5¢
Wire Chains Co.:	
Dog Chain.....	70¢/10¢
Universal Dbl.-Jointed Chain.....	50¢

Chalk—(From Jobbers.)

Carpenters' Blue.....	gro. 35¢/38¢
Carpenters' Red.....	gro. 30¢/33¢
Carpenters' White.....	gro. 25¢/28¢
See also Crayons.	

Checks, Door—

Burdley's.....	45¢
Columbia.....	50¢/10¢
Edison.....	60¢/10¢

Chests, Tool—

American Tool Chest Co.:	
Boy's Chests, with Tools.....	55¢
Youths' Chests, with Tools.....	40¢
Gentlemen's Chests, with Tools.....	30¢
Farmers' Chests, with Tools.....	20¢
with Tools.....	20¢
Machinists' and Pipe Fitters'	
Chests, Empty.....	50¢
Tool Cabinets.....	50¢
C. E. Jennings & Co.'s Machinists'	
Tool Chests.....	33¢/40¢/10¢

Chisels—**Socket Framing and Firmer**

Standard List.....	70¢/10¢/75¢/10¢
Buck Bros.....	30¢
Charles Buck.....	30¢
C. E. Jennings & Co. Socket Firmer	
No. 10 Mfg. Co. Socket Fram-	
ing No. 15.....	60¢
Ohio Tool Co.'s.....	70¢
Swan's.....	70¢
L. & I. J. White.....	30¢/30¢/5¢

Tanged—

Tanged Firmer.....	40¢/5¢/40¢/10¢
Buck Bros.....	30¢
Charles Buck.....	30¢
C. E. Jennings & Co. Nos. 191, 181, 25	
L. & I. J. White, Tanged.....	25¢/25¢

Cold—

Cold Chisels, good quality.....	13¢/15¢
Cold Chisels, fair quality.....	11¢/12¢
Cold Chisels, ordinary.....	9¢/10¢

Chucks—

Beach Pat. each \$8.00.....	35¢/5¢
Pratt's Positive Drive.....	25¢
Empire.....	25¢
Blacksmiths'.....	25¢
Skinner Patent Chucks:	
Independent Lathe Chucks.....	50¢
Combination.....	50¢
Drill Chucks, New Model.....	30¢
Drill Chucks, Standard.....	45¢
Drill Chuck, Skinner Pat. 0, 1, 2, 35	
Drill Chucks, Skinner Pat. 3, 4.....	35¢
Drill Chucks, Positive Drive.....	25¢
Planer Chucks.....	25¢
Face Plate Jaws.....	40¢
Standard Tool Co.:	
Improved Drill Chuck.....	45¢
Union Mfg. Co.:	
Combination.....	50¢
Czar Drill.....	35¢
Combination Geared Scroll.....	40¢
Geared Scroll.....	40¢
Independent.....	50¢
Independent Steel.....	40¢
Union Drill.....	45¢
Universal.....	50¢
Independent Iron F. Plate Jaws.....	40¢
Independent Steel F. Plate Jaws.....	40¢
Westcott Patent Chucks:	
Lathe Chucks.....	50¢
Little Giant Auxiliary Drill.....	50¢
Little Giant Double Grip Drill.....	50¢
Little Giant Drill, Improved.....	50¢
Oueda Drill.....	50¢
Scroll Combination Lathe.....	50¢

Clamps—

Adjustable Hammers.....	20¢/20¢/5¢
Cabinet, Sargent's.....	50¢/10¢
Carriage Makers', P. S. & W. Co.....	50¢
Carriage Makers', Sargent's.....	50¢
Resby, Parallel.....	33¢/40¢
Lineman's, Utica Drop Forge & Tool	
Co.....	40¢
Saw Clamps, see Vises, Saw Filers'.	

Cleaners, Drain—

Iwan's Champion, Adjustable.....	55¢
Iwan's Champion, Stationary.....	45¢

Sidewalk—

Star Socket, All Steel.....	3¢ doz. \$4.05 net
Star Shank, All Steel.....	3¢ doz. \$3.24 net
W. & C. Shank, All Steel.....	3¢ doz.,
7 1/2 in., \$3.00; 8 in., \$3.25.	
Foster Bros.....	30¢
New Haven Edge Tool Co.'s.....	45¢
Fayette R. Plumb.....	33¢/33¢/10¢
L. & I. J. White.....	30¢

Clippers—

Chicago Flexible Shaft Company:	
'08 Chicago Horse.....	\$8.75 } 15¢
1902 Chicago Horse.....	\$10.75 }
20th Century Horse, each.....	\$5.00, 20¢
Lighting Belt.....	\$15.00, 20¢
Chicago Belt.....	\$20.00, 15¢
Stewart's Patent Sheep.....	\$12.75, 20¢

Finger Nail Clippers—

Smith & Hemenway Co. 1/2 doz. net \$2.00	
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Clips, Axle—

Eagle, 5-16 and 3/4 in. 75¢/75¢/10¢	
Norway, 5-16 and 3/4 in. 60¢/10¢/70¢	

Cloth and Netting, Wire—See *Wire, &c.***Cocks, Brass—**

Hardware list:	
Compression, Plain Bibbs,	
Globe, Kerosene, Racking,	
&c., Cocks.....	70¢/10¢/75¢

Coffee Mills—See *Mills, Coffee.***Collars, Dog—**

Nickel Chain, Walter B. Stevens &	
Son's list.....	40¢
Leather, Walter B. Stevens & Son's	
list.....	40¢

Combs, Curry—

Metal Stamping Co.....	40¢
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Mane and Tail—

Covert's Saddlery Works.....	60¢/10¢
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Compasses, Dividers, &c.

Ordinary Goods.....	75¢/5¢/75¢/10¢
Bemis & Call Hdw. & Tool Co.:	
Dividers.....	65¢
Calipers, Double.....	65¢
Calipers, Inside or Outside.....	65¢
Calipers, Wing.....	60¢
Compasses.....	50¢

Conductor Pipe, Galva.—

L. C. L. to Dealers:	
Territory. Nested. Not nested.	
A. Eastern.....	75¢/5¢
B. Eastern.....	75¢/5¢
Central.....	75¢/5¢
Southern.....	70¢/2¢/5¢
S. Western.....	70¢/5¢
Terms, 60 days; 25 cash 10 days. Fac-	
tory shipments generally delivered.	
See also Eave Troughs.	

Coolers, Water—

Gal. each.....	2	3	4	6	8
Labrador.....	\$1.20	\$1.50	\$1.80	\$2.10	\$2.70
Gal.....	3	4	6	8	
Ice-land, ea.....	\$1.80	\$2.10	\$2.40	\$2.90	
Gal.....	2	3	4	6	8
Galv. Lined, ea.....	\$1.85	\$2.00	\$2.25	\$2.90	\$3.90
Gal.....	25¢				
Galv. Lined, side handles.....					
Gal.....	2	3	4	6	8
Each.....	\$1.95	\$2.15	\$2.40	\$3.15	\$4.15

Coopers' Tools—See *Tools, Coopers'.***Cord— Sash—**

Braided, Drab.....	lb. 35¢
Braided White, Com. lb.....	21¢/22¢/24¢
Cable Laid Italian.....	
lb., A, 18¢; B, 16¢	
Common India.....	lb. 10¢/10¢/5¢
Cotton Sash Cord, Twisted.....	11¢/17¢
Patent Russia.....	lb. 6¢/14¢
Cable Laid Russia.....	lb. 6¢/15¢
India Hemp, Braided.....	lb. 6¢/18¢
India 1.....	Twisted, lb. 12¢/13¢
Patent.....	a, Twisted, lb. 12¢/13¢
Amblin & Co.:	
Braided Cotton.....	
Old Glory, Nos. 7 to 12.....	1b 28¢
Amblin, Nos. 7 to 12.....	1b 22¢
Old Colony, Nos. 7 to 12.....	1b 22¢
Amblin Drab, Nos. 7 to 12.....	1b 25¢
Pearl Braided, cotton, No. 6.....	1b 1b
22¢; No. 7, 21¢; Nos. 8 to 12, 21¢	
Edystone Braided, Nos. 7, 8, 9 and	
10.....	1b 24¢
Edystone Braided Cotton, No. 6.....	1b 25¢
Harmony Cable Laid Italian, Nos. 7	
to 10.....	1b 23¢
Peelers.....	
Cable Laid Italian.....	16¢
Cable Laid Russian.....	14¢
Cable Laid India.....	12¢
Braided India.....	18¢
Samson, Nos. 7 to 12.....	1b 40¢
Braided, Drab Cotton.....	1b 40¢
Braided, Italian Hemp.....	1b 40¢
Braided, Linen.....	1b 55¢
Braided, White Cotton or Spot.....	1b 35¢
Massachusetts, White.....	1b 28¢
Massachusetts, Drab.....	1b 28¢
Phoenix, White, Nos. 8 to 12, 21¢;	
No. 7, 21¢; No. 6, 25¢.	
Silver Lake:	
A quality, Drab.....	40¢
A quality, White.....	35¢
B quality, Drab.....	35¢
B quality, White.....	30¢
Italian Hemp.....	40¢
Linen.....	37¢/2¢

Wire, Picture—

List Oct., '00.....	85¢/10¢/10¢/85¢/10¢/10¢/5¢
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Hendry Standard Wire Picture Cord, 85¢/10¢/5¢

Cradles—

Grain.....	40¢/12¢/2¢
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Crayons—

White Round Crayons, gr. 5 1/4 1/16	
Casca, 100 gro., \$4.00, at factory.	
D. M. Stewart Mfg. Co.:	
Jumbo Crayons.....	3¢/5¢
Metal Workers' Crayons, gr. 2 1/2 5/16	
Southern Pencils, round, flat	
or square.....	gr. 1 1/2 5/16
Rolling Mill Crayons.....	gr. 2 1/2 5/16
Railroad Crayons (composition)	
gr. 2 1/2 5/16	

Zelnicke's Lumber:

Red, Blue, Green.....	1/2 gro. 35.50
Black.....	1/2 gro. 44.00

See also Chalk.**Crooks, Shepherds'—**

Fort Madison, Heavy.....	1/2 doz. \$7.00
Fort Madison, Light.....	1/2 doz. \$6.50

Crow Bars—See Bars, Croc.**Cultivators—**

Victor Garden.....	50¢
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Cutlery, Table—

International Silver Company:	
No. 12 M'd'm Knives, 1817.....	1/2 doz. \$3.50
Star, Eagle, Rogers & Hamilton	
and Anchor.....	1/2 doz. \$3.00
Wm. Rogers & Son.....	1/2 doz. \$2.50

Cutters— Glass—

H. H. Mayhew Co.....	40¢
Red Devil.....	50¢
Smith & Hemenway Co.....	50¢
Woodward.....	40¢

Meat and Food—

American.....	30¢
Nos.....	1

Faucets—

Cork Lined.....50¢@50¢10%
Metallic Key, Leather Lined.....
60¢10¢70%

Red Cedar.....40¢10¢50%
Petroleum.....70¢10¢75%
B. & L. B. Co.:
Metal Key.....60¢10%
Star.....60

West Lock.....50¢10%
John Sommer's Peerless Tin Key.....50
John Sommer's Boss Tin Key.....50
John Sommer's Victor Mtl. Key.....50
John Sommer's Duplex Metal Key.....60
John Sommer's Diamond Lock.....40
John Sommer's I. X. L. Cork Lined.....50
John Sommer's Reliable Cork Lined.....50
John Sommer's Chicago Cork Lined.....60
John Sommer's O. K. Cork Lined.....50
John Sommer's No Brand, Cedar.....50
John Sommer's Perfection, Cedar.....40
McKenna, Brass:
Burglar Proof, N. P.....25
Improved, ½ and ¾ inch.....25
Self Measuring:
Enterprise, ½ doz. \$36.00.....40¢10%
Lane's, ½ doz. \$36.00.....40¢10%
National Measuring, ½ doz. \$36.00.....40¢10%

Felloe Plates—

See Plates, Felloe.

Files— Domestic—

List revised Nov. 1, 1899.

Best Brands.....70¢10¢75¢5%
Standard Brands.....75¢10¢75¢10%
Lower Grade.....75¢10¢10¢80¢10%

Imported—

Stubs' Tapers, Stubs' list, July
24, '97.....33 1-3@40%

Fixtures, Fire Door—

Richards Mfg. Co.:
Universal, No. 103.....\$4.00
Special, No. 104.....\$4.00
Fusible Links.....\$0.25
Expansion Bolts.....50¢10%

Grindstone—

Net Prices:
Inch.....15 17 19 21 24
Per doz.....\$2.15 2.85 3.25 3.75 4.50
P. S. & W. Co.....30¢10¢40%
Reading Hardware Co.....60%
Sargent's.....70%
Stowell's Giant Grindstone Hanger.....
Stowell's Grindstone Fixtures, Extra
Heavy.....50¢10¢10%
Stowell's Grindstone Fixtures, Light.....
60¢10%

Fodder Squeezers—

See Compressors.

Forks—

NOTE.—Manufacturers are
selling from the list of September
1, 1904, but many jobbers are still
using list of August 1, 1899, or
selling at net prices.

Iowa Dig-Ezy Potato.....60¢10%
Victor, Hay.....60¢15¢2%
Victor, Manure.....60¢
Victor, Header.....60¢
Champion, Hay.....60¢
Champion, Header.....60¢
Champion, Manure.....60¢15¢2%
Columbia, Hay.....60¢20%
Columbia, Manure.....70¢
Columbia, Spading.....70¢12%
Hawkeye Wood Barley.....40%
W. & C. Potato Digger.....60¢10%
Acme Hay.....60¢20%
Acme Manure, 4 tine.....60¢10¢5%
Dakota Header.....60¢20%
Jackson Steel Barley.....60¢20%
Kansas Header.....60%
W. & C. Favorite Wood Barley.....60%
Plated.—See Spoons.

Frames— Saw—

White, S'g't Bar, per doz. 75¢@80¢
Red, S'g't Bar, per doz. \$1.00¢1.25
Red, Dbl. Brace, per doz. \$1.40¢1.50

Freezers, Ice Cream—

Qt. 1 2 3 4 6
Each \$1.25 \$1.60 \$1.90 \$2.20 \$2.80

Fruit and Jelly Presses—

See Presses, Fruit and Jelly.

Fry Pans— See Pans, Fry.**Fuse— Per 1000 Feet.**

Hemp \$2.75
Cotton 3.20
Waterproof Sgl. Taped..... 3.65
Waterproof Dbl. Taped..... 4.40
Waterproof Tpl. Taped..... 5.15

Gates, Molasses and Oil—

Stebbins' Pattern.....80¢10¢80¢10¢5%
Gauges—
Marking, Mortise, &c.....50¢10¢5%
50¢10¢5%
Chapin-Stephens Co.:
Marking, Mortise, &c.....50¢10¢50¢10¢10%
Scholl's Patent.....50¢10¢50¢10¢10%
Door Hangers.....50¢50¢10%
Stanley R. L. Co.'s.....20¢20¢10¢10%
Rabbit Gauge.....20¢20¢10¢10%
Wire, Brown & Sharpe's.....25%
Wire, Morse's.....25%
Wire, P. S. & W. Co.....30¢10%

Gimlets— Single Cut—

Numbered assortments, per gro.
Nail, Metal, No. 1, \$2.00; 2, \$2.30
Spike, Metal, No. 1, \$4.00; 2, \$4.30
Nail, Wood Handled, No. 1,
\$2.30; 2, \$2.60
Spike, Wood Handled, No. 1,
\$4.30; 2, \$4.60

Glass, American Window

See Trade Report.

Glasses, Level—

Chapin-Stephens Co.....60¢60¢10¢10%

Glue, Liquid Fish—

Bottles or Cans, with Brush.....
25¢50%

Cans (½ pts., pts., qts., ½ gal.,
gal.).....25¢48%
International Glue Co. (Martin's).....
40¢10%

Grease, Axle—

Common Grade....gro. \$4.50¢5.50
Dixon's Everlasting.....10 lb pails, ea. 85¢
Dixon's Everlasting, in boxes, ½ doz.
1 lb, \$1.20; 2 lb, \$2.00

Grips, Nipple—

Perfect Nipple Grips.....40¢10¢2%

Griddles, Soapstone—

Pike Mfg. Co.....33¢@33¢10%

Grindstones—

Bicycle Emery Grinder.....\$6.50
Bicycle Grindstones, each.....\$2.50¢3.00
Pike Mfg. Co.:
Improved Family Grindstones.....\$2.00 } 2¢
per inch, ½ doz.....\$2.00 } 2¢
Pike Mower and Tool Grinder.....\$2.00 } 2¢
each.....\$6.00 } 2¢
Velox Ball Bearing, Mounted, Angle
Iron Frames, each.....\$3.25

Halters and Ties—

Covert Mfg. Co.:
Web.....45%
Jute Rope.....50¢5%
Sisal Rope.....35¢5%
Cotton Rope.....45¢2%
Hemp Rope.....45¢2%
Covert's Saddlery Works:
Web and Leather Halters.....70%
Jute and Manila Rope Halters.....70%
Sisal Rope Halters.....60¢20%
Jute, Manila and Cotton Rope Ties.....70%
Sisal Rope Ties.....60¢10%

Hammers—**Handled Hammers—**

Heller's Machinists'.....40¢10¢40¢10%
Heller's Farriers.....40¢10¢40¢10%
Magnetic Tack, Nos. 1, 2, 3, 1.25,
1.50, 1.75.....40¢40¢10%
Peck, Stow & Wilcox.....40¢10¢5%
Fayette H. Plumb:
Plumb, A. E. Nail.....33¢@74¢33¢40¢74%
Engineers' and B. S. Hand.....
50¢74¢50¢10¢74¢5%
Machinists' Hammers.....50¢50¢10¢5%
Riveting and Tappers.....40¢24¢40¢10¢24%
Sargent's C. S. New List.....40%

Heavy Hammers and Sledges—

Under 3 lb., per lb. 50¢
3 to 5 lb., per lb. 40¢
Over 5 lb., per lb. 30¢
Wilkinson's Smiths'.....lb. 9¢@10¢

Handles—**Agricultural Tool Handles**

Axe, Pick, &c.....60¢50¢60¢10¢5%
Hoe, Rake, &c.....45¢50¢5%
Fork, Shovel, Spade, &c.:
Long Handles.....45¢50¢5%
D Handles.....40%

Cross-Cut Saw Handles—

Atkins'.....40¢5%
Champion.....45¢45¢10%
Disston's.....50%

Mechanics' Tool Handles—

Auger, assorted....gro. \$2.50¢\$2.85
Brad Acl.gro. \$1.65¢\$1.85
Chisel Handles:
Apple Tanged Firmer, gro.
assorted.....\$2.40¢\$2.65
Hickory Tanged Firmer, gro.
assorted.....\$2.15¢\$2.40
Apple Socket Firmer, gro.
assorted.....\$1.75¢\$1.95
Hickory Socket Firmer, gro.
assorted.....\$1.45¢\$1.60
Hickory Socket Framing, gro.
assorted.....\$1.60¢\$1.75
File, assorted....gro. \$1.30¢\$1.40
Hammer, Hatchet, Axe, &c.....
60¢10¢60¢10¢10%
Hand Saw, Varnished, doz.
80¢85¢; Not Varnished.....65¢75¢
Plane Handles:
Jack, doz. 30¢; Jack, Bolted, 75¢
Fore, doz. 45¢; Fore, Bolted, 90¢
Chapin-Stephens Co.:
Carving Tool.....40¢40¢10%
Chisel.....65¢65¢10%
File and Awl.....65¢65¢10%
Saw and Plane.....40¢40¢10%
Screw Driver.....40¢40¢10%
Millers Falls Adj. and Hatchet Auger
Handles.....15¢10%
Nicholson Simplicity File Handle.....
½ gro. \$0.85¢\$1.50

Hangers—

NOTE.—Barn Door Hangers are gen-
erally quoted per pair, without track,
and Parlor Door Hangers per double set
with track, &c.
Barn Door, New Pattern, Round
Groove, Regular:
Inch.....3 4 5 6 8
Single Doz. \$0.90 1.25 1.60 1.95 2.50

Barn Door, New England Pat-

tern, Check Back, Regular:

Inch.....3 4 5 6
Single Doz.....\$1.30 1.85 2.50 3.00

Alith Mfg. Co.:
Reliable, No. 1.....per doz. \$8.00
Reliable, No. 2.....per doz. \$9.60

Chicago Spring Butt Co.:
Friction.....25%
Osculating.....25%
Big Twin.....25%

Chisholm & Moore Mfg. Co.:
Baggage Car Door.....50%
Elevator.....30%
Railroad.....50%

Cronk & Carrier Mfg. Co.:
Loose Axle.....60¢10¢5%
Roller Bearing.....70¢5%

Griffin Mfg. Co.:
Solid Axle, No. 10, \$12.00.....70%
Roller Bearing, No. 11, \$15.00.....70%
Roller Bearing, Ex. Hy., No.
3, \$15.00.....70%
Hinged Hangers, \$16.00.....60¢10%

Lane Bros. Co.:
Parlor, Ball Bearing.....\$4.00
Parlor, Standard.....\$3.15
Parlor, No. 105.....\$2.85
Parlor, New Model.....\$2.80
Parlor, New Champion.....\$2.25
Barn Door, Standard, 60¢10¢24%
Hinged.....net \$6.40
Covered.....60¢10%
Special.....70¢5%

Lawrence Bros.:
Advance.....60¢10%
Cleveland.....70¢5%
Clipper, No. 75.....60%
Crown.....60¢10%
Easy Parlor Door, Dbl. Sets,
\$2.50; Single Sets, \$1.25.....50%

Giant.....60¢5%
Hummer.....70¢5%
New York.....60¢10%
Peerless.....60¢10%
Sterling.....60¢10%

McKinney Mfg. Co.:
No. 1, Special, \$15.....60¢10%
No. 2, Standard, \$18.....60¢10%

Hinged Hangers, \$16.....60%
Meyers' Stayon Hangers.....60%
Pioneer Wood Track No. 3, \$2.15
Ball B'r'g St'l Track No. 10, \$2.40
Roller B'r'g St'l Track No. 12, \$2.30
Ball B'r'g St'l Track No. 13, \$2.40
Roller B'r'g St'l Track No. 14, \$2.30
Hero Adj. Track No. 19.....50%
Adjustable Track Tandem Trol-
ley Track No. 16.....50%

Seal, Steel Track No. 8.....\$2.40
Auto Adj. Track No. 22, 40¢10%
Trolley B. D. No. 17.....\$1.40
Trolley F. D. No. 120.....\$2.35
Trolley F. D. No. 121.....\$2.45
Trolley F. D. No. 150.....\$2.60
Safety Underwriters F. D. No.
101.....\$2.25
Tandem No. 44.....70¢5%
Trolley F. D. No. 151.....\$3.00
Palco, Adjustable Track.....132
132.....40¢10%
Royal, Adjustable Track No.
122.....40¢10%
Ives' Wood Track No. 1.....\$2.15
Trolley B. D. No. 23.....\$1.35
Trolley B. D. No. 24.....\$1.45
Trolley B. D. No. 25.....\$1.50
Trolley B. D. No. 26.....\$1.66
Roller Bearings Nos. 39, 40, 41,
43, 44.....70¢5%
Anti-friction No. 42.....60¢10%
Hinged Tandem No. 45.....60%
Folding Door B. B. Swivel.....135
135.....30%

Safety Door Hanger Co.:
Storm King Safety.....60%
U. S. Standard Hinge.....60%
Steele's Hinge & Pounding Co.:
Acme Parlor Ball Bearing.....40%
Ajax Hinge Door.....60%
Apex Parlor Door.....50¢10¢5%
Atlas.....60%
Baggage Car Door.....50%
Climate Anti-Friction.....50¢10%
Climax.....40%
Express.....50%
Freight Car Door.....60%
Interstate.....60¢10%
Lundy Parlor Door.....50¢10%
Magill.....60%
Matchless.....60%
Nansen.....70¢5%
Parlor Door.....50¢10%
Railroad.....50¢10%
Rex Hinge Door.....60%
Street Car Door.....50%
Steel Nos. 30, 40, 50.....\$0.40
Underwriters' Fire Door.....50%
Wild West Warehouse Door.....50%
Zenith for Wood Track.....50¢10%

A. L. Sweet Iron Works:
Check Back.....70%
Climate Anti-Friction.....50¢10%
Eagle.....70%
Hylo Hinge.....60%
New Perfection.....60%
Pilot.....60%
Pilot Hinge.....60%
Western Pattern.....70%
Taylor & Boggs F'y Co.'s Kid-
der's Roller Bearing.....50¢15¢10¢5%
Wilcox Mfg. Co.:
Bike Roller Bearing.....60¢10%
C. J. Roller Bearing.....60¢10%
Cycle Ball Bearing.....60%
Dwarf Ball Bearing.....40%
Ives' Wood Track.....60¢10%
L. T. Roller Bearing.....60¢10¢5%
New Era Roller Bearing.....50¢10%
Prindle, Wood Track.....60%
Richards' Wood Track.....60%
Richards' Steel Track.....50¢10%
Spencer Roller Bearing.....60¢10%
Tandem, Nos. 1 and 2.....60%
Underwriters' Roller Bearing.....40%
Scribner.....50%
Wilcox Auditorium Ball B'r'g.....50%
Wilcox Barn Trolley No. 123, 40,
50, 60, 70, 80, 90, 100, 110,
120, 130, 140, 150, 160, 170,
180, 190, 200.....50%
Wilcox Elv. Door, Nos. 112
and 1224.....50%
Wilcox Elv. Door, No. 132.....40%
Wilcox Fire Trolley, Roller
Bearing.....30%
Wilcox Le Roy Noiseless Ball
Bearing.....40%
Wilcox New Century.....50¢10¢10%
Wilcox O. K. Steel Track.....50%
Wilcox O. K. Trolley.....50%
Wilcox Trolley Ball Bearing.....40%
Wilcox Wideman Narrow Gauge
Ball Bearing.....40%
For Track, see Rail.

Hangers— Garment—

Pullman Trouser, No. 1.....½ gro. \$9.00
Pullman Trouser, No. 4.....½ gro. \$24.00
Victor Folding.....½ gro. \$9.00
Western, W. G. Co.....70¢10%

Gate—

Myers' Patent Gate Hangers, ½ doz.
net.....\$4.10

Hasps—

McKinney's Perfect Hasp, ½ doz. 50%

Hatchets—

Regular list, first quality, 40¢74%
Second quality \$1.00 per doz. less
than first quality.

Heaters, Carriage—

Clark, No. 5, \$1.75; No. 5B, \$2.00; No.
3, \$2.25; No. 3D, \$2.75; No. 12, \$5.00;
No. 31, \$3.25; No. 1, \$3.50; No. 15,
Clark Coal, ½ doz. \$0.75.....10%

Hinges—**Blind and Shutter Hinges—**

Surface Gravity Locking Blind:
(Victor); National; 1868 O. P.;
Niagara; Clark's O. P.;
Clark's Tip; Buffalo.)
No. 1 1½ 2
Doz. pair.....\$0.75 1.35 2.70

Mortise Shutter:

(L. & P. O. S., Dixie, &c.)
No. 1 1½ 2
Doz. pair.....\$0.70 .65 .60 .55

Mortise Reversible Shutter (Buf-

alo, &c.):
No. 1 1½ 2
Doz. pair.....\$0.70 .65 .60

North's Automatic Blind Fixtures,
No. 2, for Wood, \$9.00; No. 3, for
Brick, \$11.50.....10%

Parker.....70¢75%
Reading's Gravity.....60%
Sargent's, Nos. 1, 3, 5, 11 and 13.....75¢10%
Stanley's Steel Gravity Blind Hinges,
½ doz. sets, without screws, \$0.90;
with screws, \$1.20.

Wrightsville Hardware Co.:
O. S., Lull & Porter.....75¢10¢5%
Acme, Lull & Porter.....75¢10%
Queen City Reversible.....75¢10%
Shepard's Noiseless, Nos. 60, 65,
55.....75¢10%
Niagara, Gravity Locking, Nos. 1,
3 & 5.....75¢10¢5%
1868, Old Pat'n, Nos. 1, 3 & 5.....75¢10%
Tip Pat'n, Nos. 1, 3, 5 & 11.....75¢10%
Buffalo Gravity Locking, Nos. 1,
3 & 5.....75¢10%
Shepard's Double Locking, Nos. 20
& 25.....70%
Champion Gravity Locking, No. 75.75
Steamboat Gravity Locking, No. 70.75
Pioneer, Nos. 090, 45 & 54.....75%
Empire, Nos. 101 & 105.....70%
W. H. Co.'s Mortise Gravity Lock-
ing, No. 2.....60%

Gate Hinges—

Clark's or Shepard's—Doz. sets:
No. 1 2 3
Hinges with L's.....\$2.00 2.70 5.00
Hinges only.....1.40 2.05 3.80
Latches only......70 .70 .35

New England:

With Latch.....doz.@ \$2.00
Without Latch.....doz.@ \$1.60

Reversible Self-Closing:

With Latch.....doz.@ \$1.75
Without Latch.....doz.@ \$1.35

Western:

With Latch.....doz. \$1.75
Without Latch.....doz. \$1.15

Wrightsville Hardware Co.:
Shepard's or Clark's, doz. sets,
Nos. 1 2 3
Hinges with Latches.....\$2.00 2.70 5.00
Hinges only.....1.40 2.05 3.80
Latches only......70 .70 1.35

Pivot Hinges—

Bommer Bros. Pivot.....40%
Lawson Mfg. Co. Matchless.....45%

Spring Hinges—

Holdback Cast Iron.....gro. \$9.00¢\$9.50
Non-Holdback, Cast Iron.....gro. \$8.00¢\$8.50

J. Bardley:

Bardley's Non-Checking Mor-
tise Floor Hinges.....45%
Bardley's Patent Checking.....15%
Bommer Bros.:
Bommer Ball Bearing Floor
Hinges.....40%
Bommer Spring Hinges.....40%
Chicago Spring Butt Co.:
Chicago Spring Hinges.....25%
Triple End Spring Hinges.....50%
Chicago (Ball Bearing) Floor
Hinge.....50%
Garden City Engine House.....25%
Keene's Saloon Door.....25%
Columbian Hardware Co.:
Acme, Wrought Steel.....30%
Acme, Brass.....25%
American.....25%
Columbia, No. 14.....gr. \$9.00
Columbia, No. 18.....gr. \$25.00
Columbia, Adjustable, No. 7,
gr. \$12.00

Gem, new list:

Clover Leaf.....gr. \$12%
Oxford, new list.....gr. \$12%
Lawson Mfg. Co. Matchless.....30%
Richards Mfg. Co.:
Superior Double Acting Floor
Hinges.....40%
Shelly Spring Hinges.....40%
Buckeye All Steel Holdback
Screen Door.....\$9.00
Chief Ball B'r'g Floor Hinge.....50%
Ohio Detachable Screen Door
Hinge.....gr. \$12.00
The Stover Mfg. Co.:
Ideal, No. 16, Detachable,
gr. \$12.50
Ideal, No. 4.....gr. \$9.00
New Idea No. 1.....gr. \$9.00
New Idea, Double Acting.....45%
New Idea Floor.....45%
Van Wagoner:
Ball Bearing.....40%
No. 777 Sh't Steel Holdb'k.....gr. \$9.00

Extra 50% often given.

Extra 10% often given on most of these Hinges.

Wrought Iron Hinges—

Strap and T Hinges, &c., list December 20, 1904:

Light Strap Hinges.....	75c	Extra 100/100%
Heavy Strap Hinges.....	75c	
Light T Hinges.....	65c	
Heavy T Hinges.....	60c	
Extra Heavy T Hinges.....	70c	
Ring Hinges.....	50c	
Coat Heavy Strap.....	75c	
Coat Heavy T.....	70c	
Service Hook { 6 to 12 in. 1b. 3 1/4 c		
and Strap. { 1 1/2 to 20 in. 1b. 3 1/4 c		
{ 22 to 36 in. 1b. 3 c		

Service Hook and Eye:

3/4 to 1 inch.....	1b. 6 c
1 inch.....	1b. 7 c
1 1/2 inch.....	1b. 9 c

Hitchers, Stall—

Covert Mfg. Co., Stall Hitchers.....35%

Hods— Coal—

Inch.....	15	16	17	18
Galt. Open.....	\$2.50	2.75	3.00	3.25
Jap. Open.....	\$1.90	2.10	2.25	2.55
Galt. Funnel.....	\$3.00	3.30	3.60	3.90
Jap. Funnel.....	\$2.45	2.65	2.85	3.30

Masons, Etc.—Cleveland Wire Spring Co.:
Steel Mortar.....each \$1.45
Steel Brick.....each \$1.10**Hoes— Eye—**Scovill and Oval Pattern.....
60 & 100 @ 60 & 100 10%
Grub, list Feb. 23, 1899.....
70 & 100 @ 75 & 100 10%
D. & H. Scovill.....35%**Handled—**

NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.

Fl. Madison Cotton Hoe.....	70 & 100 10%
Fl. Madison Crescent Cultivator Hoe.....	70 & 100 10%
Fl. Madison Mattock Hoe.....	70 & 100 10%
Regular Weight.....	60 doz. 66%
Junior Size.....	60 doz. \$4.00
Fl. Madison Sprouting Hoe.....	60 doz. 50%
Fl. Madison Dixie Tobacco Hoe.....	75 & 100 10%
Kretschmer's Cut Easy.....	70 & 100 10%
Warren Hoe.....	75 & 100 10%
W. & C. Ivano.....	75 & 100 10%
B. R. 6 in. Cultivator Hoe.....	\$3.15
B. R. 6 1/2 in. Cultivator Hoe.....	\$3.35
Ame Wedding.....	60 doz. net, \$4.35
W. & C. L. tuing Shuffie Hoe.....	60 doz. \$4.85

Hoisting Apparatus—

See Machines, Hoisting.

Holders— Bit—

Angular, 3/4 doz. \$24.00.....45 & 10%

Door—Empire.....50%
Hardley's.....45%**File and Tool—**

Nicholson File Holders and File Handles.....33% & 10%

Hooks—Cast Iron—

Bird Cage, Reading.....	60%
Bird Cage, Sargent's List.....	60 & 100 10%
Celling, Sargent's List.....	50 & 100 10%
Clothes Line, Reading List.....	60 & 100 10%
Clothes Line, Sargent's List.....	50 & 100 10%
Coat and Hat, Sargent's List.....	50 & 100 10%
Clothes Line, Stowell's.....	70%
Coat and Hat, Reading.....	45 & 20%
Coat and Hat, Stowell's.....	70%
Coat and Hat, Wrightsville.....	65%
Harness, Reading List.....	66%
Harness, Stowell's.....	60%
School House, Stowell's.....	70%

Wire—Belt.....80 & 100 10%
Wire C. & H. Hooks.....75 & 100 @ 75 & 100 10%

Atlas Coat and Hat.....	75%
Single Cases.....	75%
10 Case Lots.....	75 & 100 10%
Columbian Hdw. Co., Gem.....	60 & 100 10%
Parker Wire Goods Co., King.....	75 & 100 10%
Van Wagoner Coat and Hat.....	70%
Western W. G. Co. Molding.....	75%
Wire Goods Co.....	60 & 100 10%
Ame.....	70%
Chief.....	70 & 100 10%
Crown.....	70 & 100 10%
Czar.....	65%
V. Brace.....	70 & 100 10%
Czar Harness.....	50 & 100 10%

Wrought Iron—

Box, 6 in., per doz., \$1.00; 8 in., \$1.25; 10 in., \$2.50.

Cotton.....doz. \$1.05 @ \$1.25

Wrought Staples, Hooks, &c.— See Wrought Goods.

Miscellaneous—

Hooks, Bench, see Stops, Bench.

Hush, Light, doz. \$1.75; Medium, \$5.35; Heavy, \$6.25

Grass, best, all sizes, per doz. \$1.50

Grass, common grades, all sizes, per doz. \$1.30

Hifttree.....lb. 5 1/4 @ 6 c

Hooks and Eyes:

Brass.....60 & 100 @ 60 & 100 10%

Malleable Iron.....70 & 100 @ 70 & 100 10%

Covert Mfg. Co. Gate and Scuttle

Covert Saddlery Works' Self Locking

Gate and Door Hook.....60%

Fl. Madison Cut-Easy Corn Hooks, 3/4 doz. \$3.25 net

Bench Hooks—See Bench Stops.

Corn Hooks—See Knives, Corn.

Horse Nails—

See Nails, Horse.

Horseshoes—

See Shoes, Horse.

Hose, Rubber—

Garden Hose, 3/4-inch:	
Competition.....	ft. 5 @ 6 c
3-ply Standard.....	ft. 8 @ 9 c
4-ply Standard.....	ft. 10 @ 11 c
3-ply extra.....	ft. 11 @ 13 c
4-ply extra.....	ft. 14 @ 16 c
Cotton Garden, 3/4-in., coupled:	
Low Grade.....	ft. 8 @ 9 c
Fair Quality.....	ft. 10 @ 11 c

Irons— Sad—

From 4 to 10.....	lb. 2 1/4 @ 3 c
B. B. Sad Irons.....	lb. 3 1/4 @ 3 1/2 c
Chinese Laundry.....	lb. 3 1/4 @ 3 c
Chinese Sad.....	lb. 3 @ 4 1/4 c
Mrs. Potts', cents per set:	
Nos.....	50 55 60 65
Jap'd Tops.....	62 59 72 69
Tin'd Tops.....	65 62 75 72
New England Pressing.....	lb. 3 1/4 @ 4 c

Pinking—

Pinking Irons.....doz. 50 @ 60 c

Soldering—

Soldering Coppers, 2 1/2 & 3.20 @ 21 c

1 1/2 & 2.....22 @ 21 c

Jacks, Wagon—Covert Mfg. Co.:
Auto Screw.....30 & 5%

Steel.....45 & 2%

Covert's Saddlery Works:

Daisy.....60 & 10%

Victor.....60%

Lockport.....50%

Lane's Steel.....30 & 10 & 5%

Richards' Tiger Steel, No. 130.....40%

Kettles—

Brass, Spun, Plain.....20 @ 25%

Enamelled and Cast Iron—See Ware, Hollow.

Knives—

Butcher, Kitchen, &c.—

Foster Bros. Butcher, &c.....30%

Smith & Hemenway Co.....40 & 10%

Wilkinson Shear & Cutlery Co.....30%

Corn—

Withington Acme, 3/4 doz. \$2.65;

Dent, \$2.75; Adj. Serrated, \$2.20;

Serrated \$2.10; Yankee No. 1, \$1.50;

Yankee No. 2, \$1.15.

Drawing—

Standard List.....70 & 100 @ 75 & 100 10%

C. E. Jennings & Co., Nos. 45, 46, 60

Jennings & Griffin, Nos. 41, 42.....60%

Ohio Tool Co.'s.....70%

Swan's.....70 & 100 @ 2 1/2

Watrous.....16%

L. & J. J. White.....20 & 5 @ 25%

Hay and Straw—

Serrated Edge, per doz. \$5.25 @ 5.50

Ivan's Sickle Edge.....3/4 doz. \$9.50

Ivan's Serrated.....3/4 doz. \$10.00

Mincing—

Buffalo.....3/4 doz. \$13.00

Miscellaneous—

Farriers'.....doz. \$3.00 @ 3.25

Wostenholm's.....3/4 doz. \$3.00 @ 3.25

Knobs—

Base, 2 1/2-inch, Birch, or Maple,

Rubber tip.....gro. \$1.15 @ 1.20

Carriage, Jap., all sizes.....

gro. 10 @ 1 1/2 c

Door, Mineral.....doz. 65 @ 70 c

Door, Por. Jap'd.....doz. 70 @ 75 c

Door, Por. Nickel.....doz. \$2.05 @ 2.15

Bardley's Wood Door, Shutters, &c. 15%

Picture, Sargent's.....60 & 100 10%

Lacing, Leather—

See Belting, Leather—

Ladders, Store, &c.—

Lane's Store.....25%

Myers' Noiseless Store Ladders.....50%

Richards Mfg. Co.:
Improved Noiseless, No. 112.....40%

Climax Shelf, No. 113.....40%

Trolley, No. 109.....40%

L. & G. Mfg. Co. (low list).....25%

P. S. & W.....50%

Reading.....60%

Sargent's.....50 & 100 10%

Lanterns—Tubular—

Regular Tubular, No. 0.....

doz. \$1.35 @ 1.75

Lift Tubular, No. 0, doz. \$1.75 @ 2.25

Hinge Tubular, No. 0.....

doz. \$1.75 @ 2.25

Other Styles.....40 & 100 @ 10 & 15 c

Bull's Eye Police—

No. 1, 2 1/2-inch.....\$2.50 @ 2.75

No. 2, 3-inch.....\$2.75 @ 3.00

Lasts and Stands, Shoe—

Stowell's Atlas, Malleable Iron.....50%

Stowell's Badger, Cast Iron.....50%

Latches—Thumb—

Roggin's Latches, with screw.....

doz. 35 @ 40 c

Door—

Richards' Bull Dog, Heavy No. 125, 40%

Richards' Trump, No. 127.....50%

Leaders, Cattle—

Small.....doz. 50 c; large, 60 c

Covert Mfg. Co.....35%

Lifters, Transom—

R. & E.....33 1/4 %

Lines—

Wire Clothes, Nos. 18 19 20

100 feet.....\$2.20 2.00 1.65

75 feet.....\$1.80 1.70 1.30

Samson Cordage Works:

Solid Braided Chalk, Nos. 0 to 3, 40%

Silver Lake Braided Chalk, No. 0,

\$6.00; No. 1, \$6.50; No. 2, \$7.00; No. 3,

\$7.50; No. 4, \$8.00; No. 5, \$8.50; No. 6,

\$9.00; No. 7, \$9.50; No. 8, \$10.00; No. 9,

\$10.50; No. 10, \$11.00; No. 11, \$11.50; No. 12,

\$12.00; No. 13, \$12.50; No. 14, \$13.00; No. 15,

\$13.50; No. 16, \$14.00; No. 17, \$14.50; No. 18,

\$15.00; No. 19, \$15.50; No. 20, \$16.00; No. 21,

\$16.50; No. 22, \$17.00; No. 23, \$17.50; No. 24,

\$18.00; No. 25, \$18.50; No. 26, \$19.00; No. 27,

\$19.50; No. 28, \$20.00; No. 29, \$20.50; No. 30,

\$21.00; No. 31, \$21.50; No. 32, \$22.00; No. 33,

\$22.50; No. 34, \$23.00; No. 35, \$23.50; No. 36,

\$24.00; No. 37, \$24.50; No. 38, \$25.00; No. 39,

\$25.50; No. 40, \$26.00; No. 41, \$26.50; No. 42,

\$27.00; No. 43, \$27.50; No. 44, \$28.00; No. 45,

\$28.50; No. 46, \$29.00; No. 47, \$29.50; No. 48,

\$30.00; No. 49, \$30.50; No. 50, \$31.00; No. 51,

\$31.50; No. 52, \$32.00; No. 53, \$32.50; No. 54,

\$33.00; No. 55, \$33.50; No. 56, \$34.00; No. 57,

\$34.50; No. 58, \$35.00; No. 59, \$35.50; No. 60,

\$36.00; No. 61, \$36.50; No. 62, \$37.00; No. 63,

\$37.50; No. 64, \$38.00; No. 65, \$38.50; No. 66,

\$39.00; No. 67, \$39.50; No. 68, \$40.00; No. 69,

\$40.50; No. 70, \$41.00; No. 71, \$41.50; No. 72,

\$42.00; No. 73, \$42.50; No. 74, \$43.00; No. 75,

\$43.50; No. 76, \$44.00; No. 77, \$44.50; No. 78,

\$45.00; No. 79, \$45.50; No. 80, \$46.00; No. 81,

\$46.50; No. 82, \$47.00; No. 83, \$47.50; No. 84,

\$48.00; No. 85, \$48.50; No. 86, \$49.00; No. 87,

\$49.50; No. 88, \$50.00; No. 89, \$50.50; No. 90,

\$51.00; No. 91, \$51.50; No. 92, \$52.00; No. 93,

\$52.50; No. 94, \$53.00; No. 95, \$53.50; No. 96,

\$54.00; No. 97, \$54.50; No. 98, \$55.00; No. 99,

\$55.50; No. 100, \$56.00; No. 101, \$56.50; No. 102,

\$57.00; No. 103, \$57.50; No. 104, \$58.00; No. 105,

\$58.50; No. 106, \$59.00; No. 107, \$59.50; No. 108,

\$60.00; No. 109, \$60.50; No. 110, \$61.00; No. 111,

\$61.50; No. 112, \$62.00; No. 113, \$62.50; No. 114,

\$63.00; No. 115, \$63.50; No. 116, \$64.00; No. 117,

\$64.50; No. 118, \$65.00; No. 119, \$65.50; No. 120,

\$66.00; No. 121, \$66.50; No. 122, \$67.00; No. 123,

\$67.50; No. 124, \$68.00; No. 125, \$68.50; No. 126,

\$69.00; No. 127, \$69.50; No. 128, \$70.00; No. 129,

\$70.50; No. 130, \$71.00; No. 131, \$71.50; No. 132,

\$72.00; No. 133, \$72.50; No. 134, \$73.00; No. 135,

Tarred Paper—
 1 ply (roll 300 sq. ft.). ton.....\$32.50@35.50
 2 ply, roll 108 sq. ft.55@60¢
 3 ply, roll 108 sq. ft.78@85¢
Slater's Felt (roll 500 sq. ft.). 75¢
 R. M. Stone Surfaced Roofing
 (roll 110 sq. ft.).\$2.75

Sand and Emery—
Flint Paper and Cloth. 60@60¢10%
Garnet Paper and Cloth.25¢
Emery Paper and Cloth. 50¢10@60¢

Parers— Apple—
 Advance ½ doz. \$4.00
 Baldwin ½ doz. \$4.00
 Bonanza Improved each \$6.50
 Daisy ½ doz. \$4.00
 Dandy each \$7.50
 Eureka Improved each \$20.00
 Family Bay State ½ doz. \$15.00
 Improved Bay State ½ doz. \$36.00
 Little Star ½ doz. \$5.00
 New Lightning ½ doz. \$7.00
 Reading 72 ½ doz. \$3.25
 Reading 78 ½ doz. \$6.25
 Rocking Table ½ doz. \$6.25
 Turn Table '98 ½ doz. \$6.00
 White Mountain ½ doz. \$5.00

Potato
 Saratoga ½ doz. \$7.00
 White Mountain ½ doz. \$6.00

Picks and Mattocks—
 List Feb. 23, 1899 70¢5@75¢
 Cronk's Handled Garden Mattock,
 ½ doz., \$6.40 33½%

Pinking Irons—
 See Irons, Pinking.

Pins, Escutcheon—
 Brass 60@60¢10%
 Iron, list Nov. 11, '85. 60@60¢10%

Pipe, Cast Iron Soil—
 Carload lots.
 Standard, 2-6 in. 60%
 Extra Heavy, 2-4 in. 70%
 Fittings 75%

Pipe, Merchant—
 Carload Lots.

	Steel.	Iron.
1/4 & 1/2 in. .68%	52	66
3/8 & 1/2 in. .72%	60	70
1/2 & 3/4 in. .76%	68	74 1/2
3/4 & 1 in. .81%	76	89 1/2

Pipe, Sewer—
 Carload lots.
 Standard Pipe and Fittings, 2
 to 24 in.:
 New England 71%
 New York and New Jersey 74%
 Maryland, Delaware, E. Pa. 78%
 West. Pa. and West Va. 80%
 Virginia 82%
 Ohio, Michigan and Ky. 80%
 Indiana 80%
 NOTE.—Carload lots are generally de-
 livered.

Pipe, Stove—
 Edwards' Nested Stove Pipe:

	C. L.	L. C. L.
5 in., per 100 joints.....	\$7.00	\$8.00
6 in., per 100 joints.....	7.50	8.50
7 in., per 100 joints.....	8.50	9.50

Planes and Plane Irons—
Wood Planes—
 Bench, first qual. 40¢10%
 Bench, second qual. 50¢10%
 Molding 33 1/2¢10%
 Bailey's (Stanley R. & L. Co.) 5¢10@25¢10%
 Chapin-Stephens Co.:
 Bench, First Quality 40¢40¢10%
 Bench, Second Quality 50¢50¢10%
 Molding 33 1/2¢33 1/2¢10%
 Toy and German 40¢40¢10%
 Chapin's 60%
 Ohio Tool Co.:
 Bench, First Quality 40¢40¢10%
 Bench, Second Quality 50¢50¢10%
 Molding 33 1/2¢33 1/2¢10%
 Adjustable Wood Bottom 60%
 Union 60%

Iron Planes—
 Bailey's (Stanley R. & L. Co.) 25¢10@25¢10%
 Chapin's Iron Planes 50¢10%
 Miscellaneous Planes (Stanley R. &
 L. Co.) 20¢10@20¢10%
 Ohio Tool Co.'s Iron Planes 60%
 Sargent's 60%
 Union 60%

Plane Irons—
 Wood Bench Plane Irons 25¢10@30%
 Buck Bros. 30%
 Chapin-Stephens Co. 30¢30¢10%
 Ohio Tool Co. 20¢10@20¢10%
 Stanley R. & L. Co. 20¢10@20¢10%
 Union 50%
 L. & J. White 20¢5@25%

Planters, Corn, Hand—
 Kohler's Eclipse ½ doz. \$8.50

Plates—
 Felloe 1b. 3%@14¢
 Self-Sealing Pie Plates (S. S. &
 Co.) ½ doz. \$2.00 50%

Pliers and Nippers—
Button Pliers— 75¢10@80%
 Gas Burner, per doz. 5 in. \$1.25
 @ \$1.30; 6 in. \$1.45 @ \$1.50.
 Gas Pipe. 7 8 10 12-in.
 \$2.00 \$2.25 \$3.00 \$3.75
 Acme Nippers 50¢50¢5%
 Cronk & Carrier Mfg. Co.:
 American Button 75¢10%
 Improved Button 60%
 Stub's Pattern 50%
 Combination and others 33 1/2%
 Heller's Farriers' Nippers, Pincers
 and Tools 40¢10@40¢10%

P. S. & W. Timmers' Cutting Nip-
 pers 30¢30¢10%
 Swedish Side, End and Diagonal Cut-
 ting Pliers 50%
 Utica Iron Forge & Tool Co.:
 Pliers and Nippers, all kinds 40%

Plumbs and Levels—
 Chapin-Stephens Co.:
 Plumbs and Levels 30¢30¢10%
 Chapin's Imp. Brass Cor. 100¢40¢10%
 Pocket Levels 30¢30¢10%
 Diston's Plumbs and Levels 70%
 Diston's Pocket Levels 70%
 C. E. Jennings & Co.'s Iron 33 1/2%
 C. E. Jennings & Co.'s Iron, Adjust-
 able 40¢7 1/2%
 Stanley R. & L. Co. 30¢100¢30¢10%
 Stanley's Duplex 20¢20¢10%
 Woods' Extension 33 1/2%

Poachers, Egg—
 Buffalo Steam Egg Poachers, ½ doz.
 No. 1, \$6.00; No. 2, \$9.00; No. 3,
 \$9.00; No. 4, \$12.00 50%

Points, Glaziers—
 Bulk and 1-lb. papers, 1b. 8 1/2¢@9¢
 1/2-lb. papers 1b. 9¢@9 1/2¢
 1/4-lb. papers 1b. 9 1/2¢@10 1/4¢

Pokes, Animal—
 Ft. Madison Hawkeye ½ doz. \$3.25
 Ft. Madison Western ½ doz. \$4.00

Police Goods—
 Manufacturers' Lists 25¢25¢5%
 Tower's 25%

Polish—Metal—
 Prestoline Liquid, No. 1 (1/2 pt.).
 doz., \$3.00; No. 2 (1 qt.), \$9.72 40%
 Prestoline Paste 40¢10%
 George William Hoffman's:
 U. S. Metal Polish Paste, 3 oz.
 boxes, ½ doz. 50¢; ½ doz. \$4.50;
 1 lb boxes, ½ doz. \$1.25; 1 lb
 boxes, ½ doz. \$2.25.
 U. S. Liquid, 8 oz. cans, ½ doz.,
 \$1.25; ½ doz. \$12.00.
 Barkeepers' Friend Metal Polish, ½
 doz., \$1.75; ½ doz. \$18.00.
 Wynn's White Silk, 1/2 pt. cans, ½
 doz. \$2.00

Stove—
 Black Eagle Benzine Paste, 5 lb cans,
 ½ lb 10¢
 Black Eagle, Liquid, 1/2 pt. cans.
 Black Jack Paste, 3/4 lb cans, ½ doz. 75¢
 Black Kid Paste, 5 lb cans, each \$0.65
 Ladd's Black Beauty, gr. \$10.00 50%
 Joseph Dixon's, ½ gr. \$5.75 10%
 Dixon's Plumbago 10¢8¢
 Fireside ½ gr. \$2.50
 Gem, ½ gr. \$4.50 30%
 Japanese ½ gr. \$3.50
 Jet Black ½ gr. \$3.50
 Peerless Iron Enamel, 10 oz. cans,
 ½ doz. \$1.50

Wynn's:
 Black Silk, 5 lb pail each 70¢
 Black Silk, 1/2 lb box ½ doz. \$1.00
 Black Silk, 5 oz. box ½ doz. \$0.75
 Black Silk, 1/2 pt. liq. ½ doz. \$1.00

Poppers, Corn—
 1 qt., Square gro. \$9.00
 1 qt., Round gro. \$10.00
 1 1/2 qt., Square gro. \$11.00
 2 qt., Square gro. \$13.00

**Post Hole and Tree Au-
 gers and Diggers—**
 See also Diggers, Post Hole, &c.

Posts, Steel—
 Steel Fence Posts, each, 5 ft., 42¢;
 6 ft., 46¢; 6 1/2 ft., 48¢.
 Steel Hitching Posts each \$1.30

Potato Parers—
 See Parers, Potato.

Pots, Glue—
 Enamelled 40%
 Tinned 35%

Powder—
 In Canisters:
 Duck, 1 lb. each 45¢
 Fine Sporting, 1 lb. each 75¢
 Rifle, 1 lb. each 15¢
 Rifle, 1 lb. each 25¢

King's Semi-Smokeless:
 Keg (25 lb bulk) \$6.50
 Half Keg (12 1/2 lb bulk) \$3.50
 Quarter Keg (6 1/4 lb bulk) \$1.90
 Case 24 (1 lb cans bulk) \$8.50
 Half case (1 lb cans bulk) \$4.50
 King's Smokeless: Shot Gun. Rifle.
 Keg (25 lb bulk) \$12.00 \$15.00
 Half Keg (12 1/2 lb bulk) 6.25 7.75
 Quarter Keg (6 1/4 lb bulk) 3.25 4.00
 Case 24 (1 lb cans bulk) 14.00 17.00
 Half case 12 (1 lb c. bk.) 7.25 8.75
 Robin Hood Sm'less Shot Gun. 50¢20%

Presses—
Fruit and Jelly—
 Enterprise Mfg. Co. 20@25%
Seal Presses—
 Morrill's No. 1, ½ doz. \$20.00 50%

Pruning Hooks and Shears
 See Shears.

Pullers, Cork—
 Invinible Cork Puller \$21.00

Pullers, Nail—
 Cyclops 50%
 Miller's Falls, No. 3, ½ doz. \$12.00 33 1/2¢10%
 Morrill's No. 1, Nail Puller, ½ doz. \$20.00 50%
 Pearson No. 1, Cyclone Spike Puller,
 each \$30.00 50%
 Pelican, ½ doz. \$9.00 40¢10%
 Scranton, Case Lots:
 No. 2B (large) \$5.50
 No. 3B (small) \$5.00
 Smith & Hemenway Co.:
 Diamond B, No. 2, case lots ½ doz. \$6.00
 Diamond B, No. 3, case lots ½ doz. \$5.50
 Giant No. 1, ½ doz. \$18; No. 2,
 \$16.50; No. 3, \$15 40%

Pulleys, Single Wheel—
 Inch 2 1/2 3
 Arching, doz. \$0.55 .85 1.15
 Hay Fork, Swivel or Solid Eye
 doz., 4 in. \$1.15; 5 in. \$1.45
 Hot House, doz. \$0.70 .90 1.25
 Inch 1 1/4 1 1/2 1 3/4 2
 Seren, doz. \$0.16 .19 .23 .30
 Inch 1 1/4 1 1/2 1 3/4 2
 Side, doz. \$0.30 .40 .55 .63
 Inch 1 1/2 1 3/4 2 2 1/2
 Tackle, doz. \$0.30 .42 .58 1.00
 Stowell's:
 Ceiling or End, Anti-Friction. 60¢10%
 Dumb Waiter, Anti-Friction. 60¢10%
 Electric Light 60%
 Side, Anti-Friction 60¢10%

Sash Pulleys—
 Common Frame: Square or
 Round End, per doz. 1 1/4 and
 2 in. 16¢19¢
 Auger Mortise, no Face Plate,
 per doz. 1 1/4 and 2 in. 16¢19¢
 Acme 1 1/4 in. 16¢; 2 in. 19¢
 Fox-All-Steel, Nos. 3 and 7, 2 in. 19¢
 Grand Rapids All Steel Noiseless. 50%
 Ideal 70¢10%
 Niagara 1 1/4 in. 16¢; 2 in. 19¢
 No. 26, Troy. 1 1/4 in. 14¢; 2 in. 16¢
 Star 1 1/4 in. 16¢; 2 in. 19¢
 Tackle Blocks—See Blocks.

Pumps—
 Cistern 60¢60¢10%
 Pitcher Spout 60¢80¢45%
 Pumps, Tubing, &c. 45¢50%
 Barnes Dbl. Acting (low list) 50¢10%
 Barnes' Pitcher Spout 80%
 Contractors' Rubber Diaphragm No.
 2, B. & L. Block Co. \$16.00
 Daisy Spray Pump ½ doz. \$7.20
 Flint & Walling's, Fast Mail Hand,
 (low list) 55%
 Flint & Walling's Fast Mail (low
 list) 55¢55%
 Flint & Walling's Tight Top Pitcher. 80%
 National Specialty Mfg. Co., Measur-
 ing, \$6.00 30%
 Mechanical Sprayer \$7.20
 Myers' Pumps (low list) 50%
 Myers' Power Pumps 50%
 Myers' Spray Pumps 50%

Pump Leathers—
 Plunger and Lower Valve—Per
 gro.:
 Inch 2 1/2 2 1/4 2 1/2 2 3/4
 Inch 3 3 1/4 3 1/2 3 3/4
 Inch \$3.30 3.60 3.85 4.10 4.40
 Plunger Cup Leathers—Per 100:
 Inch 2 1/2 3 3 1/4
 \$2.75 3.85 5.00 6.00

Punches—
 Saddlers' or Drive, good doz. 50¢75¢
 Spring, single tube, good qual-
 ity \$1.75@2.00
 Revolving (4 tubes) doz. \$3.50@3.75
 Bemis & Call Co.'s Cast St'l Drive. 50%
 Bemis & Call Co.'s Check 55%
 Morrill's No. 1 (A. B. C.), ½ doz. \$15.50
 No. 2, ½ doz. \$22.50 50%
 Hercules, each \$7.50 50%
 Niagara Hollow Punches 40%
 Niagara Solid Punches 55¢10%
 Steel Screw, B. & K. Mfg. Co. 50%
 Timmers' Hollow, P. S. & W. Co. 35¢35%
 Timmers' Solid, P. S. & W. Co. 60%
 doz., \$1.44 60%

Rail—Barn Door, &c.—
 Cast Iron Barn Door; Flange
 Screw Holes for Rd. Groove
 Wheels:
 1/2 5/8 3/4 in. 100 feet.
 \$1.70 \$2.10 \$3.00
 Angular for Sq. Groove Wheels:
 Small. Med. Large.
 \$1.50 \$1.90 \$2.60 100 feet.
 Sliding Door, Painted Iron 21¢62¢4¢

Sliding Door, Wrought Iron—
 1/4 in. lb., 36¢ 30%
 Althm Mfg. Co.:
 No. 1, Reliable Hgr. Track, ½ ft. 5 1/2¢
 No. 2, Reliable Hgr. Track, ½ ft. 7¢
 Cronk's:
 Double Braced Steel Rail ½ ft. 3¢
 O. N. T. Rail 2¢
 Griffin's:
 xx 100 ft. 1 x 3-16 in., \$3.00;
 1/4 x 3-16 in., 3.50.
 Hinged Hanger, ½ 100 ft. 1 x 3-16
 in., \$3.10; 1/4 x 3-16 in., \$3.60.
 Lane's:
 Hinged Track, ½ 100 ft., 1 in., \$3.70;
 1 1/4 in., \$4.40.
 O. N. T. ½ 100 ft. 1 in., \$2.75; 1 1/4
 in., \$3.50; 1 1/2 in., \$4.00.
 Standard, 1 1/4 in. ½ 100 ft. \$4.00
 Lawrence Bros.:
 ½ 100 ft. No. 201, \$4.00; No. 202, \$4.40.
 New York, 1 x 3-16 in., ½ 100 ft. \$2.75
 McKim's:
 Hinged Hanger Rail, ½ ft., 11¢. 50%
 None Better ½ ft. 3¢
 Standard ½ ft. 4¢
 Myers' Stayon Track 60%
 Richardson Mfg. Co.:
 Common 1 x 3-16 in., \$2.75; 1 1/4 x
 3-16, \$3.25; 1 1/2 x 3-16, \$3.50.
 Special Hinged Hanger Rail \$4.40
 Fire Door Track, ½ ft., 2 1/4 x 1/4,
 15¢; 3/4 x 1/4, 9¢.
 Lag Screw Rail, No. 65 40%
 Gauge Trolley Track, ½ ft. No. 31,
 10¢; No. 32, 15¢; No. 33, 24¢.
 Safety Door Hanger Co.'s Storm
 King Safety 60%
 Safety Door Hanger Co.'s U. S.
 Standard 60%
 Stowell's:
 Cast Rail ½ ft. 1 1/4¢
 Steel Rail, Plain 25%
 Wrought Bracket 1-3-16 in. ½ ft. 3¢
 Wrought Bracket, 1 1/4 x 5-16, ½ ft. 7¢
 Swett's Hyslo, ½ ft. 11¢ 60%
 E. E. Steel Rail ½ 100 ft. \$3.00
 No. 0, 1 x 3-16 ½ 100 ft. \$2.75

Rakes—
 NOTE.—Manufacturers are
 selling from the list of September
 1, 1904, but many jobbers are still
 using list of August 1, 1899, or
 selling at net prices.

Fort Madison Red Head Lawn \$3.25
 Fort Madison Blue Head Lawn \$2.70
 Jackson Lawn, 29 and 30 teeth, ½
 doz., net \$1.25
 Cronk's:
 New Champion Garden, ½ doz., 12
 teeth, \$15.00; 14, \$16.50; 16, \$18.00. 75%
 Victor Garden, ½ doz., 12 teeth,
 \$15.00; 14, \$16.50; 16, \$18.00. 75%
 Queen City Lawn, ½ doz., 20 teeth,
 \$3.45; 21, \$3.60 75%
 Anticlog Lawn, ½ doz. \$1.30
 Malleable Garden 70¢10%
 Kohler's:
 Lawn Queen, 24-tooth ½ doz. \$3.45
 Lawn Queen, 24-tooth ½ doz. \$3.60
 Paragon, 20-tooth ½ doz. \$2.75
 Paragon, 21-tooth ½ doz. \$3.00
 Steel Garden, 14-tooth ½ doz. \$2.85
 Malleable Garden, 14-tooth, ½ doz.,
 \$1.75@2.00
 Weldless Steel Garden 75¢5%

Rasps, Horse—
 Diston's 75%
 Heller Bros. 70¢50¢70¢10%
 McCaffrey's American Std. 60¢10%
 New Nicholson 70¢10@75%
 See also Files.

Razors—
 Borasie 60%
 Fox Razors, No. 42, ½ doz. \$20.00
 Fox Razors, No. 44, ½ doz. \$20.00
 Fox Razors, No. 46, ½ doz. \$25.00
 Red Devil 60%
 Silberstein:
 Carbo Magnets \$18.00
 Griffin, No. 65 \$15.00
 Griffin, No. 60 \$12.00
 All other Razors 40%

Safety Razors—
 Silberstein 40%

Reels, Fishing—
 Hendryx:
 M 6, Q 6, A 6, B 6, M 9, M 16,
 Q 16, A 16, B 16, 4008, Rubber,
 Popul. N. Keckled Popul. 20%
 Aluminum, German 917, Bronze 25%
 1240 N. 124 N. 20%
 3004 N. 06 N. 6 RM. G 9 25%
 4 N. 6 PN. 24 N. 26 PN. 20%
 2904 P. 30%
 2904 PN. 30%
 0924 N. 30%
 02084 N. 30%
 002904 PN. 30%
 802 N. 30%
 986 PN. 2904 N. 974 PN. 25%
 5009 PN. 5009 N. 20%
 Competitor 102 P. 102 PN. 202 P.
 202 PN. 102 PR. 202 PR. 20%
 304 P. 304 PN. 00304 P. 00304 PN. 30%
Registers—List July 1, 1903.

Black Jap 75%
 Bronzed 75%

Revolvers—
 Single Action 95¢@1.00
 Double Action, except 44 cal. \$1.85
 Double Action, 44 caliber \$2.00
 Automatic \$3.75
 Hammerless \$4.00
 NOTE.—Jobbers frequently cut the
 above prices of manufacturers for small
 trade.

Riddles, Hardware Grade
 16 in. per doz. \$2.25@2.50
 17 in. per doz. \$2.50@2.75
 18 in. per doz. \$2.75@3.00

Rings and Ringers—
Bull Rings—

Steel \$2 2 1/2 3 inch.
 Copper \$1.00 1.15 1.40 doz.
 Rea's Improved Self-Piercing, Cop-
 per, 2 in., ½ doz. \$1.25; 2 1/2 in.,
 \$1.50; 3 in., \$1.75.

Hog Rings and Ringers—
 Hill's Rings, gro. boxes \$4.00@4.50
 Hill's Ringers, Gray Iron 50¢55¢
 Hill's Ringers, Malleable Iron doz. 70¢75¢

Blair's Rings per doz. \$4.75@5.25
 Blair's Ringers, per doz. \$0.60@.65
 Brown's Ringers, per doz. \$5.00@5.50
 Brown's Ringers, per doz. \$0.60@.65

Rivets and Burrs—
 Copper 50¢10@60%
 Iron or Steel 75¢75¢5%

Rollers—
 Acme, Stowell's Anti-Friction 50%
 Barn Door, Sargent's list 60%
 Cronk's 90%
 Cronk's Brinkerhoff 40%
 Lane's Stay 40%
 Richards' Stay:
 Handy Adj. and Reversible No. 53.50
 O. K. Adj. and Reversible No. 58.50
 Lag Screw, Nos. 55 and 57 50%
 Fire Door, No. 59 40%
 Favorite, No. 54 40%
 Stowell's Barn Door Stay, ½ doz. \$1.00
 Swett's Anti-Friction 50%
 Screw and Spike Stay ½ doz. 65¢
 Hinge Adjustable Stay ½ doz. 90¢

Rope—
 Manila, 7-16 in. diam. and larger:
 Pure 1b. 11¢@12¢
 Sisal, 7-16 in. diam. and larger:
 Mixed 1b. 9¢@9 1/2¢
 Pure 1b. 9¢@9 1/2¢
 Sisal, Hay, Hide and Bale
 Ropes, Medium and Coarse:
 Mixed 1b. 8¢@8 1/2¢
 Pure 1b. 9¢@9 1/2¢

Sisal, Tarred, Medium Lath
Yarn:
Mixed lb. 7 3/4¢
Pure lb. 9 1/4¢
Cotton Rope:
Best, 3/4-in. and larger 16¢
Medium, 1/2-in. and larger 14¢
Common, 3/4-in. and larger 10 1/2¢
Jute Rope:
Thread No. 1, 1/4-in. & up, lb. 6 1/4¢
Thread No. 2, 1/4-in. & up, lb. 5 1/4¢
Old Colony Manila Transmission
Rope lb. 17 1/4¢

Wire Rope—

Galvanized 42 1/2¢
Plain 50 1/2¢

Ropes, Hammocks—

Cover Mfg. Co.: 50 1/2¢
Jute 50 1/2¢
Sisal 50 1/2¢
Cover Saddlery Works 60 1/2¢

Rules—

Boxwood 60¢
Ivory 35¢
Chapin-Stephens Co.: 60¢
Boxwood 60¢
Ivory 35¢
Miscellaneous 55¢
Combination 55¢
Stations 10¢

Keuffel & Esser Co.: 35¢
Folding, Wood 35¢
Folding, Steel 35¢
Larkin's Steel 50¢
Larkin's Lumber 60¢
Stanley R. & L. Co.: 60¢
Boxwood 60¢
Ivory 35¢
Eaton Nut Co.: 60¢
Boxwood 35¢
Ivory 35¢

Sash Balances—
See Balance, Sash.

Sash Locks—
See Locks, Sash.

Sash Weights—
See Weights, Sash.

Sausage Stuffers or Fillers
See Stuffers or Fillers, Sausage.

Saw Frames—
See Frames, Saw.

Saw Sets— See Sets, Saw.

Saw Tools— See Tools, Saw.

Saws—

Aiken's:
Band 50¢
Cross Cuts 35¢
Muley, Mill and Drag 40¢
One-Man Saw 40¢
Wood Saws 40¢
Hand, Compass, &c. 40¢
Chapin-Stephens Co.: 30¢
Turning Saws and Frames 30¢
Diamond Saw & Stamping Works 30¢
Sterling Kitchen Saws 30¢
Dixton's:
Circular, Solid and Ins'ted Tooth 50¢
Band, 2 to 14 in. wide 60¢
Band, 1/4 to 1 1/2 60¢
Crosscuts 50¢
Narrow Crosscuts 50¢
Muley, Mill and Drag 40¢
Framed Woodsaws 35¢
Woodsaw Blades 35¢
Woodsaw Rods 25¢
Hand Saws, Nos. 12, 9, 9, 6, 10, 100, 18, 120, 76, 77, 8 25¢
Hand Saws, Nos. 7, 107 1/2, 3, 20 25¢
0, 00, Combination 25¢
Compass, Key Hole, &c. 25¢
Butcher Saws and Blades 35¢
C. E. Jennings & Co.'s:
Back Saws 25¢
Butcher Saws 30¢
Compass and Key Hole Saws 35¢
Framed Wood Saws 30¢
Hand Saws 20¢
Wood Saw Blades 35¢
Mills Falls 15¢
Star Saw Blades 15¢
Peace & Richardson's Hand Saws 30¢
Simonds:
Circular Saws 50¢
Crescent Ground Cross Cut Saws 35¢
One-Man Cross Cut Saws 40¢
Gang Mill, Muley and Drag Saws 50¢
Band Saws 50¢
Back Saws 25¢
Butcher Saws 35¢
Hand Saws 25¢
Hand Saws, Bay State Brand 45¢
Compass, Key Hole, &c. 25¢
Wood Saws 35¢
Springfield Mach. Screw Co.: 40¢
Diamond Kitchen Saws 40¢
Butcher Saws and Blades 35¢
Wheeler, Madden & Clemson Mfg. Co.'s Cross Cut Saws 50¢

Hack Saws—

Atkins' Hack Saw Blades A A A 25¢
Dixton's:
Concave Blades 40¢
Keystone 40¢
Hack Saw Frames 30¢
Fitchburg File Works, The Best 25¢
C. E. Jennings & Co.'s:
Hack Saw Frames, Nos. 175, 180 40¢
Hack Saws, Nos. 175, 180, complete 40¢
Goodell's Hack Saw Blades 40¢
Griffin's Hack Saw Frames 35¢
Griffin's Hack Saw Blades 35¢
Stratfield Mach. Screw Co.: 35¢
Diamond Hack Saw Frames 35¢
Diamond Hack Saw Blades 35¢
Star Hack Saws and Blades 35¢
Sterling Hack Saw Blades 35¢
Sterling Hack Saw Frames 30¢

Scroll—

Barnes' No. 7, 115 25¢
Barnes' Scroll Saw Blades 40¢
Barnes' Velocipede Power Scroll Saw, without boring attachment, \$20 15¢
Lester, complete, \$10.00 15¢
Rogers, complete, \$4.00 15¢

Scalers, Fish—

Covett's Saddlery Works 60¢

Scales—

Family, Turnbull's 50¢

Counter:

Hatch, Platform, 1/2 oz. to 4 lbs. 50¢
Two Platforms, 1/2 oz. to 8 lbs. 50¢
Union Platform, Plain 1.90
Union Platform, Stpd 1.85

Chatillon's:
Eureka 25¢
Favorite 25¢
Crocker's Trip Scales 50¢
Chicago Scale Co.:
The "Little Detective" 25 lbs 50¢
Union or Family No. 2 60¢
Portable Platform (reduced list) 50¢
Wagon or Stock (reduced list) 50¢
"The Standard" Portables 50¢
"The Standard" R. R. and Wagon 50¢

Scrapers—

Box, 1 Handle 2.25
Box, 2 Handle 2.85
Ship 1.50
Adjustable Box Scraper (S. R. & L. Co.) 30¢
Chapin-Stephens Co., Box 50¢

Screens, Window and

Frames—
Air Line Pattern Screens 60¢
Flyer Pattern Screens 60¢
Maine Screen Frames 40¢
Perfection Screens 60¢
Phillips' Screen Frames 60¢
See also Doors.

Screws—Bench and Hand

Bench, Iron, doz., 1 in., \$2.50
2 1/2 in., \$3.00
Bench, W'd. Beech, doz. 30¢
Hand, Wood 30¢
It. Bliss Mfg. Co., Hand 30¢
Chapin-Stephens Co., Hand 30¢
Ohio Tool Co., Bench and Hand 30¢

Coach, Lag and Hand Rail—
Lag, Cone Point, list Oct. 1, '99 75¢
Coach, Gimlet Point, list Oct. 1, '99 75¢
Hand Rail, list Jan. 1, '91 70¢

Jack Screws—

Standard List 75¢
Mills Falls 50¢
Mills Falls, Roller 50¢
P. S. & W. 50¢
Sargent 70¢
Sweet Iron Works 75¢

Machine—

List Jan. 1, '98:
Flat or Round Head, Iron 50¢
Flat or Round Head, Brass 50¢

Set and Cap—

Set (Iron or Steel) 80¢
S. H. Cap 75¢
H. H. Cap 75¢
Rd. or Fittister H. Cap 65¢

Wood—

List July 21, 1903.
Manufacturers' printed discounts:
Flat Head, Iron 87¢
Round Head, Iron 85¢
Flat Head, Brass 85¢
Round Head, Brass 80¢
Flat Head, Bronze 77¢
Round Head, Bronze 77¢
Drice Screws 87¢

Scroll Saws—

See Saws, Scroll.

Scythes—

Prices announced for next season:
Clippers Pattern, Grass 30¢
Full Polished, Clipper 35¢
Grain 35¢
Clipper, Grain 35¢
Weed and Bush 35¢

Seeders, Raisin—

Enterprise 25¢

Sets—Awl and Tool—

Brad Awl and Tool Sets:
Wood Handle, 14 Acls. 25¢
Wood Handle, 14 Acls. 25¢
Tools 25¢
Aiken's Sets, Awl and Tools:
No. 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

Set and Cap—

Set (Iron or Steel) 80¢
S. H. Cap 75¢
H. H. Cap 75¢
Rd. or Fittister H. Cap 65¢

Wood—

List July 21, 1903.
Manufacturers' printed discounts:
Flat Head, Iron 87¢
Round Head, Iron 85¢
Flat Head, Brass 85¢
Round Head, Brass 80¢
Flat Head, Bronze 77¢
Round Head, Bronze 77¢
Drice Screws 87¢

Scroll Saws—

See Saws, Scroll.

Scythes—

Prices announced for next season:
Clippers Pattern, Grass 30¢
Full Polished, Clipper 35¢
Grain 35¢
Clipper, Grain 35¢
Weed and Bush 35¢

Seeders, Raisin—

Enterprise 25¢

Sets—Awl and Tool—

Brad Awl and Tool Sets:
Wood Handle, 14 Acls. 25¢
Wood Handle, 14 Acls. 25¢
Tools 25¢
Aiken's Sets, Awl and Tools:
No. 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451,

Pike Mfg. Co., 1901 list:

Black Diamond S. S.	gro. \$12.00
Lamotte S. S.	gro. \$11.00
White Mountain S. S.	gro. \$9.00
Green Mountain S. S.	gro. \$6.00
Extra Indian Pond S. S.	gro. \$7.50
No. 1 Indian Pond S. S.	gro. \$7.00
No. 2 Indian Pond S. S.	gro. \$5.50
Leader Red End S. S.	gro. \$4.50
Emery and Corundum	10 in. \$9.00
Pure Corundum, 10 in.	gro. \$12.00
Crescent	gro. \$7.00
Emery Scythe Rifles, 2 Coat	\$8.00
Emery Scythe Rifles, 3 Coat	\$10.00
Emery Scythe Rifles, 4 Coat	\$12.00
Balance of 1904 list	33 1/2 %

Oil Stones, &c.—

Chicago Wheel & Mfg. Co., 1901 list:	
Gem Corundum Oil, Double Grit	50 %
Gem Corundum Oil, Single Grit	50 %
Gem Corundum Slips	50 %
Gem Corundum Razor Hones	50 %

Pike Mfg. Co., 1901 list:

Arkansas St. No. 1, 3 to 5 in.	\$2.50
Arkansas St. No. 1, 5 1/2 to 8 in.	\$3.50
Arkansas Slips No. 1	\$4.00
Lily White Washita, 4 to 8 in.	60c
Rosy Red Washita, 4 to 8 in.	60c
Washita St., Extra, 4 to 8 in.	50c
Washita St., No. 1, Curving, 1 in.	40c
Washita St., No. 2, 4 to 8 in.	30c
Lily White Slips	90c
Rosy Red Slips	90c
Washita Slips, Extra	80c
Washita Slips, No. 1	70c
Washita Slips, No. 2	40c
India Oil Stones (entire list)	33 1/2 %
Quickcut Emery and Corundum Oil Stone, Double Grit	33 1/2 %
Quickcut Emery and Corundum Oil Stone, Single Grit	33 1/2 %
Quickcut Emery Rubbing Bricks	33 1/2 %
Hindustan No. 1, R. G. lar. 1 lb.	6c
Hindustan No. 1, Small, 1 lb.	10c
Axe Stones (all kinds)	33 1/2 %
Turkey Oil Stones, Extra	10c
8 in. Curving	10c
Queer Creek Stones, 4 to 8 in.	20c
Queer Creek Slips	40c
Sand Stone	6c
Belgian, German and Swaty Razor Hones	50 %
Natural Grit, Curving, 1 lb.	30c
Hones	doz. \$3.00
Quick Edge Pocket Knife	10c
Hones	doz. \$2.50
Mounted Kitchen Sand Stone	doz. \$1.50

Stoners, Cherry—

Enterprise	25 @ 30 %
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Stoppers, Bottle—

Victor Bottle Stoppers	1/2 gro. \$9.00
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Stops—Bench—

Millers Falls	15 @ 10 %
Morrill's, 1/2 doz. No. 1	\$10.00
Morrill's, No. 2	\$12.50

Door—

Chapin-Stephens Co.	60 @ 60 & 10 %
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Plane—

Chapin-Stephens Co.	20 %
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Straps—Box—

Cary's Universal, case lots	20 @ 10 & 10 %
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Hame—

Covert's Saddlery Works	60 @ 10 %
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Stretchers, Carpet—

Cast Iron, St'l Points, doz.	55 @ 60 %
Socket	doz. \$1.75
Excelsior Stretcher and Tack Hammer Combined	1/2 doz. \$6.00

Stuffers, Sausage—

Enterprise Mfg. Co.	25 @ 25 & 7 1/2 %
National Specialty Co., list Jan. 1, 1902	30 @ 5 %

Sweepers, Carpet—

National Sweeper Co.	30 doz.
Auditorium, Roller Bearing (26 in. case), Nickel	\$54.00
Mammoth, Roller Bearing (30 in. case), Nickel	\$60.00
Marion, Roller Bearing, full finishes, full Nickel	\$24.00
Marion Queen, Roller Bearing, full Nickel	\$24.00
Monarch, Roller Bearing, N'kel	\$22.00
Monarch, Roller B'gs, Jap'neel	\$20.00
Transparent, Roller Bearing, Plate Glass Top, Nickel	\$36.00
Monarch Extra, Roller Bearing, (17-in. case), Nickel	\$36.00
Monarch Extra, Roller Bearing, (17-in. case), Japanned	\$32.00
National Queen, Fancy Veneer	\$27.00
Perpetual, Regular B'gs, Nkl	\$20.00
Perpetual, Regular B'gs, Jap	\$18.00
Triple Medal	\$24.00

NOTE.—Rebates: 50c per dozen on three-dozen lots; \$1 per dozen on five-dozen lots; \$2 per dozen on ten-dozen lots; \$1.50 per dozen on twenty-five-dozen lots.

Tacks, Brads, &c.—

Carpet Tacks	90 @ 25 @ 5 @ 1/2 %
American Cut Tacks	90 @ 20 @ 5 @ 1/2 %
Sweden Cut Tacks	90 @ 33 @ 5 @ 1/2 %
Sweden Upholsterers' Tacks	90 @ 10 @ 5 @ 1/2 %
Gimp Tacks	90 @ 15 @ 5 @ 1/2 %
Lace Tacks	90 @ 15 @ 5 @ 1/2 %
Trimmers' Tacks	90 @ 33 @ 5 @ 1/2 %
Looking Glass Tacks	65 @ 5 @ 1/2 %
Bill Posters' and Railroad Tacks	90 @ 15 @ 5 @ 1/2 %
Hungarian Nails	80 @ 20 @ 5 @ 1/2 %
Common and Patent Brads	80 @ 10 @ 5 @ 1/2 %
Trunk and Clout Nails	80 @ 10 @ 5 @ 1/2 %

NOTE.—The above prices are for Straight Weights. An extra 5 % is given on Star Weights and an extra 10 @ 5 % on Standard Weights.

Miscellaneous—

Double Pointed Tacks	90 @ 6 or 7 tens
Steel Wire Brads, R. & E. Mfg. Co.'s	30 @ 10 @ 60 %
See also Nails, Wire	

Tanks, Oil—

Emerald, S. S. & Co.	30-gal. \$3.40
Emerald, S. S. & Co.	60-gal. \$4.25
Queen City, S. S. & Co.	30-gal. \$3.65
Queen City, S. S. & Co.	60-gal. \$4.50

Tapes, Measuring—

American Asses' Skin	40 @ 10 @ 50 %
Patent Leather	25 @ 30 @ 5 %
Steel	40 @ 10 @ 10 %
Chesterman's	25 @ 25 @ 5 %
Eddy Asses' Skin	40 @ 10 @ 50 %
Eddy Patent Leather	25 @ 30 @ 5 %
Eddy Steel	40 @ 10 @ 10 %
Kaufel & Esmer Co.	40 @ 10 @ 50 %
Favorite, Ass Skin	40 @ 10 @ 50 %
Favorite, Duck and Leather	25 @ 30 @ 5 %
Metallic and Steel, lower list	35 @ 35 @ 5 %

Teeth, Harrow—

Steel Harrow Teeth, plain or headed, 1/2-inch and larger—	
per 100 lbs.	\$3.00

Thermometers—

Tin Case	80 @ 10 @ 80 @ 10 @ 5 %
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Ties, Bale—Steel Wire—

Single Loop	80 @ 2 1/2 %
Monitor, Cross Head, &c.	70 %

Brick Ties—

Niagara Brick Ties	25 @ 10 %
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Tinners' Shears, &c.—

See Shears, Tinners', &c.	
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Tinware—

Stamped, Japanned and Piced, sold very generally at net prices.	
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Tips, Safety Pole—

Covert's Saddlery Works	60 @ 10 %
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Tire Benders, Upsetters, &c.

See Benders and Upsetters, Tire.	
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Tools—Coopers'—

L. & I. J. White	20 @ 20 @ 5 %
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Hay—

Myers' Hay Tools	50 %
Stowell's Hay Carriers	50 %
Stowell's Hay Forks	50 %
Stowell's Fork Pulleys	50 %

Saw—

Atkins' Cross Cut Saw Tools	40 %
Simonds' Improved	33 1/2 %
Simonds' Crescent	25 %

Ship—

L. & I. J. White	25 %
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Transom Lifters—

See Lifters, Transom.	
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Traps—Fly—

Balloon, Globe or Acme, doz.	\$1.15 @ \$1.25; gro. \$1.15 @ \$1.20
Harper, Champion or Paragon, doz.	\$1.25 @ \$1.40; gro. \$1.30 @ \$1.50

Game—

Onida Pattern	75 @ 10 @ 75 @ 10 @ 5 %
Newhouse	45 @ 5 @ 5 %
Hawley & Norton	65 %
Victor and Onida	70 @ 10 @ 70 @ 10 @ 5 %
O. C. Jump (Blake Pat.)	60 @ 5 @ 60 @ 10 %

Mouse and Rat—

Mouse, Wood, Choker, doz. holes	8 1/2 @ 9c
Mouse, Round or Square Wire	doz. \$5.90
Marty French Rat and Mouse Traps (Genuine)	1/2 doz. \$1.21; 1/2 doz. \$1.35
No. 1, Rat, 1/2 doz.	\$6.50; case of 50 \$5.75 doz.
No. 3 1/2, Rat, 1/2 doz.	\$5.25; case of 72 \$4.70 doz.
No. 4, Mouse, 1/2 doz.	\$3.55; case of 150 \$3.00 doz.
No. 5, Mouse, 1/2 doz.	\$3.00; case of 150 \$2.25 doz.

Trimmers, Spoke—

Wood's E. I.	50 %
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Trowels—

Disston Brick and Pointing	30 %
Disston Plastering	25 %
Disston "Standard Brand" and Garden Trowels	35 %
Kohler's Steel Garden Trowels, 5 in.	1/2 gro. \$9.00
Kohler's Steel Garden Trowels, 6 in.	1/2 gro. \$6.00
Never-Break Steel Garden Trowels	1/2 gro. \$6.00
Rose Brick and Plastering	25 @ 5 %
Woodrough & McFarlin, Plastering	25 %

Trucks, Warehouse, &c.—

B. & L. Block Co.	50 @ 10 %
New York Pattern	60 @ 10 %
Handy Trucks	doz. \$16.00
Grocery	doz. \$15.00
Daisy Store Trucks, Improved Pattern	1/2 doz. \$18.50
McKinney Trucks	each \$10.00
Model Store Trucks	doz. \$18.50

Tubs, Wash—

Galvanized, per doz.	\$4.75 @ 5.25 @ 6.00
Galvanized Wash Tubs (S. S. & Co.)	
No. 1, 2, 3, 10, 20, 30, 60, 7.20 @ 7.20 @ 8.10	

Twine, Miscellaneous—

Flax Twine	B. C. B.
No. 9, 1/4 and 1/2-lb. Balls	22 @ 2 1/2c
No. 12, 1/4 and 1/2-lb. Balls	18 @ 20c
No. 18, 1/4 and 1/2-lb. Balls	16 @ 18c
No. 21, 1/4 and 1/2-lb. Balls	16 @ 18c
No. 36, 1/4 and 1/2-lb. Balls	15 @ 17c
Chalk Line, Cotton	1/2-lb. 30c
Cotton Mops, 6, 9, 12 and 15 lb.	to doz. 9 1/2 @ 11c
Cotton Wrapping, 5 Balls to lb.	according to quality. 13 1/2 @ 20c
American 2-Ply Hemp, 1/4 and 1/2-lb. Balls	13 @ 14c

American 3-Ply Hemp, 1-lb.

Balls	13 @ 14c
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India 2-Ply Hemp, 1/4 and 1/2-lb.

Balls (Spring Twine)	37c
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India 3-Ply Hemp, 1-lb. Balls

7 @ 8c	
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2, 3, 4 and 5-Ply Jute, 1/2-lb.

Balls	9 @ 10c
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Mason Line, Linen, 1/4-lb. Bls.

No. 26 1/2 Mattress, 1/4 and 1/2-lb.	46c
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Wool, 3 to 6 ply

B 3 1/4c; A 5c	
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Vises—

Solid Box	60 @ 10 @ 60 @ 10 @ 10 %
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Parallel—

Athol Machine Co.	40 %
Simpson's Adjustable	40 %
Standard	40 %
Amateur	25 %
Columbian Hdw. Co.	40 %
Emmert Universal	40 %
Pattern Makers' No. 1	\$15.00; No. 2, \$12.50; No. 3, \$10.00.
Machinist and Tool Makers' No. 4	\$12.50; No. 5, \$7.00; No. 6, \$10.00;
No. 10	\$21.50
Jewelers' No. 1	\$4.00
Fisher & Norris Double Screw	15 @ 10 %
Holland's	
Machinists'	40 @ 40 @ 5 %
Keystone	65 @ 5 @ 7 %
Lewis Tool Co.	20 @ 30 %
Merrill's	25 %
Millers Falls	60 @ 10 %
Massey Vice Co.	
Glincher	40 %
Perfect	20 %
Lightning Grip	20 %
Parker's	
Victor	20 @ 25 %
Regulars	20 @ 25 %
Vulcan	40 @ 45 %
Combination Pipe	55 @ 60 %
Prentiss	20 @ 25 %
Sargent's	40 %
Smith & Hemenway Co.	
Machinists'	40 %
Jewelers'	33 1/2 %
Snediker's X. L.	33 1/2 %
Stephens'	33 1/2 %

Saw Filers—

Disston's D 3 Clamp and Guide	30 doz. \$30.
Perfection Saw Clamps	1/2 doz. \$5.00
Reading	60 %
Wentworth's Rubber Jaw, Nos. 1, 2 and 3	45 @ 50 %

Wood Workers—

Massey Vice Co.	
Lightning Grip	15 %
Perfect	15 %

Wyman & Gordon's Quick Action

in., \$6.00; 9 in., \$7.00; 14 in., \$8.00.	
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Miscellaneous—

Biggall & Keeler Combination Pipe	60 @ 10 %
Holland's Combination Pipe	60 @ 10 @ 5 %
Massey's Quick Action Pipe	40 %
Parker's Combination Pipe	
87 Series	60 %
157 Series	60 @ 5 %
No. 870	40 %

Wads—Price per M.

B. E., 11 up	60c
B. E., 9 and 10	70c
B. E., 8	80c
B. E., 7	80c
P. E., 11 up	\$1.00
P. E., 9 and 10	1.25
P. E., 8	1.50
P. E., 7	1.50
Ely's B. E., 11 and larger	\$1.70 @ 1.75
Ely's P. E., 12 to 20	\$3.00 @ 3.25

Ware, Hollow—

Cast Iron, Hollow—

Enamelled

Ground	50 @ 55 @ 10 %
Plain or Unground	60 @ 65 @ 10 %
Country Hollow Ware, per 100 lbs.	\$2.75 @ \$3.00

White Enamelled Ware:

Maslin Kettles	70 %
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Covered Wares

Tinned and Turned	40 %
Enamelled	50 %

See also Pots, Gluc.

Enamelled—

Agate Nickel Steel Ware	50 @ 20 %
Agate Nickel Steel Ware, Specials	
Iron Clad Ware	60 @ 15 %
Lava, Enamelled	70 @ 10 %
Never Break Enamelled	50 %

Tea Kettles—

Galvanized Tea Kettles	
Inch	6 7 8 9
Each	45c 50c 55c 65c

Steel Hollow Ware—

Avery Spiders and Griddles	65 @ 65 @ 5 %
Avery Kettles	60 %
Porcelainized	50 @ 50 @ 10 %
Never Break Spiders and Griddles	65 @ 5 %
Never Break Kettles	60 %
Solid Steel Spiders and Griddles	65 @ 5 %
Solid Steel Kettles	60 %

Warmers, Foot—

Pike Mfg. Co., Soapstone	40 @ 40 @ 10 %
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Washboards—